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Can Flipped Learning Work in Online Courses?

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Abstract

Flipping a fully online class challenges several assumptions of the traditional flipped classroom. This qualitative study investigated how flipped approaches can be applied to fully online courses. Seven faculty in graduate programs in education were interviewed. Overall, most participants felt that delivering content and lectures through videos was easily accomplished in online settings. Technology tools that can assist with the process are discussed. However, the lack of synchronous face-to-face meetings posed the greatest challenge to providing opportunities for deeper learning.

Introduction

Flipped classroom approach is continuing to gain popularity in education (Pérez, Collado, García de los Salmenes, Herrero, & Martín, 2019; Tomas, Evans, Doyle, & Skamp, 2019). In this approach, the classroom instruction and homework activities are flipped allowing the instructor greater use of class time to get into the topic at a much deeper level involving higher order thinking skills and real-world applications. Even though the flipped approach was first proposed for use in K-12 classrooms (Bergmann & Sams, 2012), its use in higher education has continued to grow, in part due to the increased access to technology and ease of content creation using video. Flipped learning is seen as a blended learning model where part of the instruction is conducted via technology (in this case, faculty created videos), and part of the education takes place in-person, and is generally found to be more effective than fully face-to-face classrooms (Fazal & Bryant, 2019). The concept has expanded beyond topic introduction and is now defined as a “pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter” (Flipped Learning Network, 2014, para. 4). This definition takes away the limitation of time and space, of when and where the instruction is taking place, and focuses on the type of teaching and learning activity instead.

The flipped classroom approach has been suggested as an effective way to improve student learning in traditional courses by developing important skills such as critical thinking, creative thinking, as well as collaborative learning (Awidi & Paynter, 2019; Gilboy, Heinerichs, &

Pazzaglia, 2015; Roehl, Reddy, & Shannon, 2013). This approach is distinguished as a learner-centered approach (Lu & Han, 2018). The flipped classroom approach shifts the pedagogy from teacher centered lectures in delivering information to the students in the classroom to more relevant activities such as discussion, problem-solving, hands-on activities, and direct teacher guidance (Akçayır & Akçayır, 2018; Roehl et al., 2013). In the flipped classroom, the students read and watch video to prepare for the class session that is dedicated to applying concepts, analysis of information, synthesizing the learned material, and creating objects of understanding (Caviglia-Harris, 2016; Gilboy et al., 2015). The advantages of this approach are posited to improve student engagement in learning and in motivation to learn (Akçayır & Akçayır, 2018; Perez et al., 2019). The flipped approach, when compared to the traditional approach has shown to yield increased scores on learning outcomes (Compeau, 2019), and tends to support positive attitudes in students and educators (Inan, Balakilshnan, & Refeque, 2019; Kozikoglu, 2019; Romero, Buzon-Garcia, & Touron, 2019). On the other hand, Tomas et al., (2019) found that even though students reported a high level of engagement while viewing videos in flipped lessons, results were mixed on whether the flipped approach was overall preferred over the traditional methods of teaching.

As courses and programs in higher education are increasingly being offered fully online, institutions of higher education are under pressure to innovate online teaching and learning in order to meet student's learning needs without in-person class meetings. As of 2015, 6 million higher education students were taking at least one online course with almost 3 million taking all online courses (Allen & Seaman, 2017). Despite the surge in enrollment numbers, completion rates for online learning is lower than in the face-to-face programs (Gering, Sheppard, Adams, Renes, & Morotti, 2018). According to Protopsaltis and Baum (2019), by early 2019, almost one-third of all college students took fully online courses with no in-person meeting requirements. The authors also found that student achievement gaps based on socioeconomic status were greater in online than in face-to-face courses and students without a strong academic foundation were more likely to drop out from online courses or had relatively weaker learning outcomes. Thus, there is growing pressure on institutions of higher education to bring innovative pedagogies in online education that can improve student learning, increase student engagement, and decrease student dropout from online programs. Flipped classroom approach is one such pedagogy that is being explored for online learning.

Most fully online courses are asynchronous with some real-time meetings using web-conferencing tools. Hence the question emerges whether instructors can take advantage of the flipped approach in fully online courses. While the flipped approach has been found to improve student learning in traditional face-to-face classroom, there is a paucity of research on using flipped instruction approaches to fully online courses and programs. Flipping a fully online class challenges several assumptions of the traditional flipped classroom. Without synchronous class meetings is it even possible to flip since there is no traditional in-class/out-of-class or before/during/after class (Talbert, 2015). How can the flipped approach be applied to fully online courses? Strategies by independent practitioners appear on blogs however, the field of online learning can greatly benefit from systematic studies on flipped approach in online learning.

Purpose of the Study

The purpose of this study was to gain insights about incorporating best practices from the flipped classroom approach into fully online courses, from instructors experienced in teaching fully online as well as fully face-to-face courses. This study focused on faculty in the graduate teacher education and school leadership preparation programs at one university. The flipped classroom as a pedagogical approach is taught to the graduate students in these programs and the instructors were well-versed with the flipped methodology. The focus of the study was to understand how these instructors in the sample currently structured their online courses, how they could incorporate the flipped approach, and what support they would need to help with the implementation of these strategies.

Research Questions

The following research questions were used to guide this exploratory study:

- R1. How can instructors incorporate the flipped classroom approach in their fully online courses?
- R2. What are the challenges to incorporating the flipped approach in fully online courses?
- R3. What support systems can the university provide in order for instructors to incorporate the flipped teaching and learning approach in fully online courses and programs?

Method

Research Design

This study was conducted in Fall 2018 and Spring 2019 semesters. In-depth interview methodology was used to gather data for the exploratory research questions. In qualitative research, the interview method is often considered superior to other qualitative data collection methods when the interviewer is experienced and skillful (Best & Kahn, 1989). People are usually more willing to dialog than they are to write. The interviewer has the opportunity to explain questions in more detail and to probe more effectively to solicit reflective and insightful responses.

Interviews took place over Zoom which is a tool for video and audio conferencing and collaboration. After receiving written informed consent, participants were asked for permission to record the interview using Zoom's recording capability. One investigator led the interview discussion while the other captured notes and highlights of the conversations. Both investigators have the necessary skills for conducting interviews, including developing rapport, asking probing questions, and keeping questions as open-ended as possible. Each interview lasted approximately 45-60 minutes.

Population and Sample Selection

The study was conducted at one university in large metropolitan city in the United States. Faculty in the department of education were recruited to participate. The department offers several graduate programs in teacher education and in school leadership. Whereas the university has mostly fully-face-to-face programs, the teacher education and school leadership programs run fully online.

The investigators sent an email to 12 full-time and adjunct faculty in the programs, explaining the nature of the study. They were clearly informed that the study was being conducted by individual faculty members in the department and there was no requirement or implication to

change their course(s) based on the outcome of the study. Seven instructors consented to participating in the study and were selected as the sample. The participants were assigned numbers to maintain confidentiality and privacy.

Instrumentation and Sources of Data

A thorough literature search was conducted, which informed the open-ended questions that were used for the interviews. The investigators arranged the order of the questions to allow for a conversational flow. To help with the content validity, questions were presented to those who understood flipped classroom to ensure that the structure, language and content was appropriate. The questionnaire was edited based on feedback.

Questions started with understanding how the instructors structured their typical online courses and the advantages and challenges of the methods they used. These were followed by questions on application of flipped approach to online courses. The questions were worded carefully so that no assumptions were made about the instructor's perceptions of the flipped approach. The final set of questions were designed to elicit information on the ideal situation under which flipped could be incorporated in fully online courses and the support that the faculty and students would need for the development and implementation of strategies with fidelity.

Results

Data Analysis

The interview notes were analyzed, and videos were reviewed to add to the notes and capture verbatim quotes from the participants. The constant comparative method was used to code the data and the resulting text was iteratively analyzed for emerging themes. The constant comparative method is an inductive process for data coding frequently used in research to categorize and compare qualitative data for analysis (Miles, Huberman, & Saldana, 2014). This analysis method allows for a systematic and transparent approach to derive emerging concepts from the data. On the other hand, it is a labor-intensive task that requires significant investment of time.

The researchers met frequently throughout the research process to assure reliable data collection, analysis, and reporting. The meetings involved an iterative process review of the notes and recordings and discussion with a focus on the elimination of any bias.

Themes

The analysis revealed the following six major themes: (i) a need to define flipped learning for online environments; (ii) asynchronous learning is the core of online courses; (iii) lack of synchronous meetings pose a challenge for flipping; (iv) technology is the easy part; (v) start with creating deep-learning content; and (vi) institutional support for instructors is necessary. The final six themes were derived from initial ten themes through repeated researcher discussion and analysis.

(i). A need to define flipped learning for online environments. The participants identified the need to define the flipped learning approach and what it would look like in fully online courses. Participant 4 explained the challenge of using flipped learning in online courses, "There are so many definitions." The first concept emerging from the analysis was that "deep-dive"

discussions based on the content is a central component of the flipped approach. Participant 1 asserted that flipped learning needed, “activities where they (students) apply and demonstrate their understanding.” Similarly, participant 5 described the importance to, “free up time for deeper learning.” The flipped learning approach was seen as an opportunity for developing deep-level understanding of complex and ambiguous learning topics involved in classroom teaching. The second concept was that learners need to be provided with rich content resources in the form of readings, websites, video, etc. Participant 2 elaborated, “Lectures are not a great way to present material. The true test is if it [learning objective] can be applied. We prepare them for situations that are not well defined, no formula.” Participant 5 suggested that, “By its very nature, anytime you provide content-based resources, you are using the flipped approach. All of the information is out there. The instructor is no longer the holder of information.”

In effect, data suggests that instructors feel that the part of flipped that happens automatically in an online environment is the presentation of the material via videos and other resources. However, the other part, which is creating opportunities for deep learning can be challenging in an online asynchronous environment.

(ii). Asynchronous learning is the core of online courses. Asynchronous learning through discussion boards is part of most online learning courses and all participants used this format extensively. Typically, students were asked to review videos and other content and then participate in the discussion boards. Class peers as well as instructors could comment and provide feedback through this section creating opportunities for collaboration and deep learning. Participant 2 said that the discussions were, “Like peeling an onion. I can roughly anticipate what they say, it uncovers the learning process.” Participant 5 explained the asynchronous discussions, “they share with their peer and get feedback.”

Synchronous learning was supported using Zoom online conferencing application. However, it was a challenge to conduct these sessions due to difficulty in scheduling meetings with students as participant 7 said, “I have low attendance so I record the session so if they missed, they can view it. It is difficult to find time that all students can attend. So, I record it for review. But most [learners] don't review it based on my experience, based on the questions that they have.”

The instructors expressed a desire to use Zoom for full class meetings in lieu of physical face-to-face meetings for potentially deeper exploration of topics with a Socratic type of discussion with the learners. However, due to scheduling difficulties and poor attendance, this goal was difficult to achieve which alluded to the difficulty with implementing the flipped approach.

(iii). Lack of synchronous meetings pose a challenge. The data revealed skepticism on whether the online environment could be flipped. Only one participant described using the flipped approach in online courses using instructional resources for the students along with asynchronous discussions. Rest of the participants were skeptical on the possibility of flipping a fully online course due to the unavailability of opportunities for synchronous face-to-face interactions. Participant 1 said that, “time is a big issue...scheduling (face-to-face sessions) is difficult.” The lack of real-time student-to-student and teacher-to-student interaction for discussion and application of learning concepts limited the capacity for deep-level thinking for the learners. Participant 3 said, “I’m not sure that we can migrate [to] the flipped classroom

model”. Similarly, participant 1 asserted that the flipped approach, “required live activities.” With regards to the lack of real-time meetings, participant 1 said “I cannot guide them live while they are developing their thoughts.” Participant 7 summarized, “We already do videos for presentations, for resources... what’s missing is the community of learning...and lack of teachable moments”.

A suggestion was to require synchronous meetings to improve the teaching and learning experiences. For example, participant 5 said that, “if there are expectations for live meetings, that helps, even if it is once every other month.” The synchronous meetings could take place via web conferencing platforms, however, they concluded that this may not be possible since students in online classes could be in different time zones and work schedules.

The theme centered around the possibility of expanding learner opportunities for more discursive learning through deep-dives into course content. Providing learners greater opportunity for Socratic-type of insightful learner engagement in the content, through group discussions, was identified. However, the absence of real-time opportunities for Socratic seminars poses a challenge for providing “teachable moments” for critical analysis, and deeper learning.

(iv). Technology is the easy part. Flipped learning environments required that students be provided with content related video and resources as well as robust communication tools. Participant 4 commented that the online course was “designed to use these (technology) resources.” Participant 1 said that has was, “presenting most of the content in video.” The instructors offered suggestions for some technology tools and applications that they had used. The asynchronous learning was enabled through a variety of video production tools that included Zoom with its inherent capacity to record the audio along with the computer screen in the production of a screencast. This was particularly useful in courses where there was a need to demonstrate a new technology tool to the students. Course instructors could use screen capture tools to record presentations for the students to view. Additionally, the instructors had their students produce class presentations. Participant 3 said, "I teach them how to use Zoom to do their group project." The tools varied in applications that were used for communication, video production, learning management systems, etc. Instructors implemented asynchronous activities by creating tutorial videos for explaining content and activities. Participant 7 commented, "I create videos on how to access articles in the library database. How to do searches online in Google." Table 1 lists all the tools and their primary use identified by the participants.

(v). Start with creating engaging deep-learning content. The instructors made suggestions for initiating the flipped approach centering on the potential to engage students in deep-level discussions and application of concepts. Participant 1 described that “let them (students) do the work...don’t give them information...let them find it.” Participant 4 described how she provided students with opportunities for deep—learning and “encouraged (students) making mistakes, while experimenting.” Participant 5 talked of the importance of providing students “access to rich and appropriate content.” There was a need for supporting faculty in flipping courses. Participant 3 posited that, “... there must be a way to also support for pedagogical approach.” In providing deep-learning content, participant 2 described the importance of having students “think aloud...you want to make the thinking of the student visible.” However, the online environment

could limit the fluid communication that might be facilitated in traditional classrooms. It is not easy to incorporate discursive elements and the online environment might be challenging to learners.

Table 1

Technology Tools and Uses (listed alphabetically)

Tool	Uses
Bluejeans	Video conferencing and screencasting
Camtasia	Screencasting and video production
Edmodo	Learning Management System
Educreations	Interactive whiteboard and screencasting
ExplainEverything	Interactive whiteboard and screencasting
Flipgrid	Video recording and communication
Google classroom	Learning Management System
Google sites	Website creation
Jing	Screencasting
Schoology	Learning Management System
Screencast-o-matic	Screencasting
ShowMe	Interactive whiteboard
Snaggit	Screencasting
Taskstream	e-Portfolio, and assessment management
Whatsapp	Social messaging
WolframAlpha	Computational knowledge engine
Zoom	Video conferencing and screencasting

(vi). Institutional support for instructors is necessary. Most participants agreed that the flipped approach would require considerable increase in faculty interaction with students in the asynchronous environment. Three types of support were identified. First, it was recommended that the flipped approach would work only if online class size was optimum. Participant 6 said

“If there are too few [students] it does not work [because] they learn from each other... Not less than 10 and no more than 15. With less than 10 [students] discourse becomes sparse... More than 12-15 students, impacts my ability to keep up.” Participant 7 felt eight students was the optimum size but no more than 12. Another area of support identified was getting graduate assistants (GAs). Participants felt that if instructors were assigned GAs, they could take care of monitoring the assignments while the instructor focused on providing feedback and asking probing questions to create a two-way discussion. Participant 1 said “Providing individual useful feedback asynchronously is time consuming.” Participant 7 expressed that with the help of the GA, the instructor could focus more on conducting frequent small group synchronous meetings via Zoom, thus providing more opportunities for teachable moments and deeper learning. Finally, participants expressed that all faculty receive professional development in the flipped approach.

In addition, the need for supporting faculty in being comfortable with productivity technology was described. Participant 3 posited that, “For someone [faculty] with no experience, they need support from TLC [technology learning center]. Their office has faculty for [technology] support... there must be a way to also support for pedagogical approach.”

Supporting learners was also identified as a necessity for creating a flipped learning environment. For example, participant 6 was concerned about learner comfort with technology and said, “I want to make sure they are not freaking out.” Beginning the flipped approach in the online environment is daunting for as variety of factors that includes the remote learning situation as well technology use barriers that might be a problem to both the learners and the instructors. The discursive elements enabled through technology tools might also be challenging to learners.

Discussion of Results

Overall, participants expressed that they valued the flipped pedagogy because it provided support for deeper learning. At the same time there was skepticism about successfully applying the flipped concepts in a fully online program. The main challenge identified was the lack of synchronous meeting options which significantly limited the instructor’s ability to facilitate discussions and activities. Well-designed text-based asynchronous discussions could potentially lead to opportunities for deeper engagement with the content, however, this approach can require significant instructor time investment. Given this requirement, recommended class size was a minimum of 8 students to allow for sustainable discourse but no more than 12 students to allow for individual input from the instructor.

Content resources that included videos, were available to learners, and faculty expressed no difficulty in preparing instructional material using these tools. However, professional learning in the flipped pedagogy was identified as important. Faculty might require support in integrating applications and tools for improved online education. In addition, instructors would like the support from a graduate assistant or a teaching assistant so they can focus on small group discussions and discourse.

Implications

This study confirmed previous research concluding that blended learning is a more effective approach in teaching and learning when compared to fully online learning or fully face-to-face classrooms. Online courses should build in some degree of synchronous meeting even if it is via web conferencing platforms. Synchronous meetings should be conducted in small groups to ensure all students are engaged and instructors can facilitate deep Socratic-type discourse. Even though most learning management systems used in online education primarily rely on text-based input from students, tools such as Zoom and Flipgrid allows for multi-modal interactions that can be used more extensively and effectively.

Limitations

The sample of seven participants in this study fell slightly short of the target eight participants. Another limitation is that all participants were from one institution and department thus limiting generalizability of results to other programs. Finally, the sample did not include a significant number of instructors using the flipped approach in their courses. Only one participant expressed using the flipped approach while others were skeptical of being able to implement the deep learning components necessary.

Recommendations for Future Research

Future research should include a larger sample size across multiple programs. Effort should be made to include participants who not only know about the theory of flipped classroom but have also attempted to include the approach in their online courses. Studies should also include interviews or focus groups with students to understand their perspectives on how the flipped approach could work in their online classes.

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