

Does “flipping” promote engagement?: A comparison of a traditional, online, and flipped class

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Abstract

“Flipped” or inverted classrooms are designed to utilize class time for application and knowledge building, while course content is delivered through the use of online lectures and watched at home on the students’ time. It is believed that flipped classrooms promote student engagement and a deeper understanding of the class material. The purpose of this study is to compare self-reported student engagement in three separate course modalities: traditional face-to-face lecture class, flipped class, and an online class. It is hypothesized that the flipped class will report higher levels of student engagement because of the nature of the active learning environment.

Keywords

active learning, flipped classroom, student engagement

The use of flipped classrooms

Flipped classrooms are a relatively new instructional technique designed to give students a deeper understanding of core concepts. Instead of the traditional, lecture-based courses, inverted or “flipped” classes provide more hands-on and applied knowledge during class time while the lecture is administered online, where the students can watch it at home on their own time and as often as they want. The flipped classroom is increasingly utilized in higher education (Arnaud, 2013). In a flipped classroom, students utilize class time for problem solving, application, or reviewing, and use out-of-class time for the content delivery (Bergmann and Sams, 2012). For example, students watch recorded lectures for homework and completed their assignments, labs, and tests in class with their teacher available. With this method of content delivery, educators find their students

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display a deeper understanding of the material than they do in a traditional face-to-face lecture (Bergmann and Sams, 2012).

Flipped classrooms are found to provide more student engagement, which also relates to student satisfaction and, ultimately, retention. The principle of a flipped classroom is active learning. Many educators believe students learn best when they are actively engaged in the learning process (Bradford, 2005). Active learning has also been associated with higher student motivation, confidence, and critical thinking skills (Machemer and Crawford, 2007). Thus, the formation of learning environments that use active learning would assist students with integrating course content and “real world” scenarios. This may prove beneficial as many undergraduates entering the working world do not obtain the requisite skills necessary to perform their jobs effectively or efficiently (Hart Research Associates, 2015; Levine, 2005). Therefore, it has been argued that educational experiences should increase student activities inside and outside the classroom, promote knowledge acquisition and educational performance, increase group-based and cooperative learning, and assist students in developing solutions to real-world, complex problems (Wells and Grabert, 2004).

Active learning is especially relevant to the millennial student (born after 1982) who thrives in an environment of variety and change (Prensky, 2010). On the part of the educator, it requires the instructor to adopt a learning-centered paradigm rather than a teaching-centered paradigm (Roehl et al., 2013). On the part of the student, it requires agency, initiative, and the utilization of higher order thinking, such as analysis, synthesis, and evaluation (Bonwell and Eison, 1991). The challenges of providing learners with variety and engagement without content overload has prompted academia to reconsider the way postsecondary education is designed and delivered (Bristol, 2014). There is a wealth of information about active learning work and the benefits of engaging students in the course material. When students spend time meeting in groups and participating in application activities, they are able to achieve deeper learning as well as develop skills such as writing and communication (Light, 2001). Bridging of in-class and out-of-class work encourages students to spend more time preparing for class, and having conversations with team members outside of regular class time (Wright and Lawson, 2005). It encourages conversation and collaboration, and requires the students to work through the content rather than passively absorb concepts and ideas.

An example of active learning is demonstrated through constructionist theory, which outlines learning as a dynamic process whereby learners actively make sense of the material they receive in order to build upon and organize knowledge in a coherent way (Mayer, 2004). Constructionist learning promotes new teaching methods focused on student-centered approaches where students are responsible for actively learning and applying information rather than just absorbing content delivered from the instructor (Cannon and Newble, 2000). While active learning can be expressed in many different teaching forms, the central aim of these teaching methods is to foster deep learning and understanding (Mayer, 2004). One way deep learning is achieved is through cooperative learning. Cooperative learning uses student interactions in ways that promote interaction and independence. If done correctly, this can also encompass group work and collaborative learning. Peer interaction is cooperative if it adheres to two basic principles: positive interdependence and individual accountability (Millis and Cottel, 1998). Positive interdependence means that group members internalize the group as a necessary component for individual learners to achieve their goals (Johnson and Johnson, 2009). Individual accountability refers to the need for each student to be assessed by their individual learning outcome as a way to prevent social loafing (which is one of the major concerns of group work).

Cooperative and collaborative learning also play a major role in student satisfaction and engagement (Popkess and McDaniel, 2004). Student engagement is associated with teamwork, leadership, commitment, effort, satisfaction, and retention (Dunne and Owen, 2013). As Kuh (2009) noted,

the engagement process is straightforward and easily understood: The more students study a subject, the more they know about it, and the more students practice and get feedback from faculty and staff members, on their writing and collaborative problem solving, the deeper they come to understand what they are learning and the more adept they become at managing complexity, tolerating ambiguity, and working with people from different backgrounds or with different views. (p. 5)

This rhetoric is part of the model of curriculum reform. Student engagement encompasses ways in which students become active partners in shaping their learning experience (UK Higher Education Academy (UK HEA), 2012). While it takes more time for instructors to implement engagement principles into their courses, it has the benefit of encouraging students to develop their own learning agendas. In fact, the main conclusion to emerge from studies on cooperative learning is that the students greatly valued these opportunities and active engagement in lectures, both as a means of improving their understanding of the unit content and in maintaining their interest during the class sessions. In particular, students valued the variety of activities, especially the opportunities for small-group and whole-class discussions (Cavanagh, 2011).

The flipped classroom is built on the foundation of active learning and application. It does not simply mean “flipping” lectures and homework:

Inverting the classroom means that events that have traditionally taken place inside the classroom now take place outside the classroom and vice versa. The use of learning technologies, particularly multimedia, provides new opportunities for students to learn, opportunities that are not possible with other media. (Lage et al., 2000: 32)

With the flipped model, class time then becomes a time of engagement, collaborative learning, and exploration. Research suggests that students learn best when they are actively involved in the process (Davis, 1993). According to Wasley (2006), “students who participate in collaborative learning and educational activities outside the classroom and who interact more with faculty members get better grades, are more satisfied with their education, and are more likely to remain in college” (p. A39). A collaborative learning environment, as opposed to a passive learning environment, helps students learn more actively and effectively (Murphy et al., 2005). Additionally, research also shows that employers want college graduates to possess the ability to work in groups, communicate effectively, apply knowledge in real-world settings, demonstrate critical thinking, and have developed suitable teamwork skills (Blowers, 2000; Hart Research Associates, 2015).

Technology and the flipped classroom can foster these outside class discussions. For example, Elgort et al. (2008) utilized the use of wikis in a class and found that most wikis encouraged student participation and group involvement. Additionally, many instructors use online discussion forums in their face-to-face classes to foster participation and engagement (Wright and Lawson, 2005). Ogden (2015) found that the online lectures allowed students to utilize a self-paced approach to learning the course content, which yielded higher satisfaction. Similarly, Roach (2014) used online video lectures to flip his economics class and found that students watched the videos and reported that they would take another class with video lectures. Roach (2014) accepts the lack of statistical significance in their study as a good finding because it implies that the flipped learning model is beneficial across student groups, and does not help or hinder any one set of students.

Flipped classrooms enable professors to engage students in the higher levels of Bloom’s taxonomy, such as application, analysis, and synthesis (Krathwohl, 2002). Although there has been little research on the educational outcome as it relates to student learning outcomes within flipped classrooms, there has been research on indirect measures of success, such as student satisfaction

with the course and instructor reflections and perceptions (Gilboy et al., 2015). Ogden (2015) found that students felt the flipped classroom teaching approach provided them more time to ask their instructor questions related to the course that they were learning and they felt that the flipped classroom approach utilized multiple instructional components that supported their individual needs. However, this type of learning environment takes time and effort, and instructors have difficulty creating good content to ensure students stay motivated (Milman, 2012).

Talley and Scherer (2013) utilized a flipped classroom for undergraduate students in which they self-tested in class after watching the instructor's prerecorded lectures at home. This allowed the class time to be used for review, enhancing students' retention of the material, and assessment of the level of the students' understanding instead of regurgitating course material. Talley and Scherer (2013) found that students spent more time engaging in the course content, which resulted in improved performance in their examinations. Kim et al. (2014) surveyed students in three different classes taught by three separate instructors and found that the flipped classroom assignments "helped students to regulate learning by self or by peers in terms of goal setting, monitoring their progression, and evaluating their own achievements" (p. 42). A potential benefit of flipped learning is that students are able to cover course material at a pace that agrees with their learning style. Self-paced learning has been extensively studied, as well as examining effective online classes (Roach, 2014).

However, while flipped classrooms have received praise and support, there are still those who are skeptical. For example, some have suggested that the flipped classroom approach may only work in with upper income students who can afford home access to computers and reliable Internet connections. If students cannot afford the technology, even with the availability of computer labs on campus, flipping a classroom would not be beneficial to students—they need to receive the instruction in the classroom (Horn, 2013). Additionally, research has found that students do not necessarily achieve better grades in the flipped classroom (Kim et al., 2014) or enjoy the learning environment (Chen et al., 2014). The results of a study revealed that there was no significant difference in student performance between flipped classrooms and traditional classrooms, and that students perceive a significantly lower level of support in the flipped environment, which leads to lower engagement in the material (Strayer, 2012). Similarly, Ebbeler (2013) attempted to use the flipped classroom modality in a class but found that a majority of the students did not watch the lectures at home, thus resulting in lackluster classroom discussions. Ebbeler (2013) found that about 75% of the students preferred the traditional lecture-based class as opposed to the flipped model. Kim et al. (2014) found 25% of the students in one of their classes did not access the lectures at home. This ties in with trends in studying time in general. Babcock and Marks (2010) found that the average student at a 4-year college typically spends about 14 hours a week studying. This is a marked decrease from what students reported in 1961, which was 24 hours a week, which means that students today simply may not be interested in doing work outside of the classroom and are, therefore, not equipped for the proactive nature of a flipped classroom.

While the flipped classroom concept opens the door to the exploration of many instructional approaches and formats, it has been difficult to gauge an exact assessment of best practices or uniformity. Does the flipped model work for everyone or is the technique better suited for some courses as opposed to others? The purpose of this study is to determine whether the flipped model, as opposed to the traditional face-to-face lecture-based course or a traditional completely online course, increases student engagement. The flipped classroom environment is thought to encourage more student engagement and increase student satisfaction, and so it would be expected that students in a flipped classroom would score more highly on aspects such as their knowledge of theoretical constructs, their skills and abilities in terms of critical thinking, and also on student engagement, given that the flipped environment is intended to help students in this regard.

Methods

The following study compares three sections ($N=92$) of the same upper division (third- and fourth-year students) undergraduate crime control class taught during the 2012–2013 academic year. The class is a required class for the major, which means all students intending to graduate with a degree in criminology and criminal justice must take this class. Additionally, some students elect to take this class to satisfy the requirements for a minor. During the 2012–2013 academic year, it was offered as a traditional lecture-based class in Winter term and a flipped class section and an online section were offered in the Spring term. The same professor taught all three class sections. Winter and Spring terms lasted 10 weeks.

At the end of the term, the students in each class were asked to complete an online survey through Moodle, the university's learning management system (LMS). A majority of the questions were adapted from the 2013 National Survey of Student Engagement and sought to measure student learning, engagement, personal development, and what they gained from the class. While the textbook and learning objectives were the same for all three sections, the material was delivered in three different modalities. Questions on the survey were grouped into separate categories: time spent doing specific coursework, perceptions of engagement and retention of information, and behaviors of engagement and application.

Traditional class

The traditional class used lectures, 10 critical thought essays (one per week due before the start of class and discussing the material/assigned reading to be covered in class that day), three assignments, and three examinations. The class lasted 1 hour and 50 minutes twice a week and comprised lecture and classroom discussions. The course content was posted to Moodle but the lectures were not. Newspaper stories, YouTube clips, the syllabus and related course documents, assignment directions, and grades were all posted to Moodle. Lectures were only delivered in class. The "critical thought essays" were 300-word reflections of material covered in textbook chapters, such as "Discuss the drug crime connection. Which is the most plausible explanation and why." These essays were ways to gauge whether the students were reading the required textbook and help them tease out important ideas from within the chapters.

The three assignments involved finding and evaluating a crime prevention program covered in a newspaper or magazine (Assignment 1), summarizing and critiquing an empirical evaluation of a peer-reviewed crime prevention program (Assignment 2), and creating a crime prevention pamphlet designed to inform and instruct people how to adopt crime prevention/control techniques (Assignment 3). The tests were fill in the blank, matching, short answer, and essay questions that incorporated application as well as rote memorization of concepts and definition.

Online class

The online class comprised online lectures for each of the book chapters (PowerPoint slides with voice narrations lasting approximately 20–30 minutes each), plus five discussion board items, five critical thought essays, three assignments, and three examinations. The discussion boards and critical thought essays mirrored the critical thought essays in the traditional classroom. The assignments were the same as the traditional class assignments, and all three classes were given the same examinations. The online class received the same supplemental information (newspaper stories and YouTube clips) as the other two sections.

Flipped class

Upon enrollment, students did not know that a nontraditional method would be used, and thus, the course did not necessarily attract learning styles that were more inclined to online learning or active engagement. The flipped approach was introduced to students the first day of class at the beginning of the Spring term, and students were told that they would need to watch the lecture videos online before coming to each class to discuss the material. The flipped class used the same lectures as the online class, the same three assignments, and the same three examinations. It also used 10 classroom activities, which tried to incorporate the concepts addressed in the critical thought essays and always referred the material covered in the textbook. They were typically informally written up in one page, completed as a group in a collaborative learning setting, and turned in at the end of class. The students were required to read the assigned chapter and watch the lecture at home before coming to class. In class, the students applied the material from the assigned readings/lectures. For example, the classroom activities involved walking around campus and taking note of different aspects of defensible space or how the university was using aspects of Routine Activities Theory in crime prevention techniques (motivated offender, suitable target, lack of capable guardian). The class time also utilized guest speakers such as the Chief of Police, who spoke about the city's hot spots and crime fuses as well as how to apply for jobs in police departments; the Community Emergency Response Team director, who spoke about partnerships and community involvement; and a juvenile probation officer, who spoke to the students about internships and who broke the class into groups to demonstrate teamwork and team building skills. The Chief of Police and probation officer were very interactive in their presentation and required class participation. Similar to the traditional and online class, newspaper articles, YouTube clips, and requisite course content were all posted to Moodle.

It was hypothesized that the flipped class would report higher responses on the student engagement questions than either the traditional class or the online class because of the extra hands-on work, the application of material covered in the textbook, and the inclusion of guest speakers with real-world applicability.

Results

The first set of questions that compared the three sections examined the possible differences in time spent doing specific coursework/requirements (i.e. reading, writing, studying for examinations). Respondents were asked how many hours were spent reading per week. Eighty-seven percent of students in the traditional classroom read 10 or less hours per week, 93% of students in the flipped classroom read less than 10 hours per week, and 91% of students in the online classroom read less than 10 hours per week (see Table 1). Only one student per section reported reading more than 20 hours per week.

Similarly, respondents were asked to indicate the average number of hours per week they spent writing assignments. Ninety percent of students in the traditional classroom, 93% of students in the flipped classroom, and 87% of students in the online classroom wrote 10 hours or less per week, respectively. There seems to be consistency in students' allocation of time for writing assignments, regardless of the course delivery system.

Finally, students were asked to specify the number of hours they spent studying for tests. Eighty-three percent of students in the traditional classroom, 72% of students in the flipped classroom, and 75% of students in the online classroom spent less than 10 hours per week studying for examinations. It seems that flipped and online students reported spending a little more time studying for examinations than traditional classroom students.

Table 1. Percentages for time spent doing work.

Variable	Code	Traditional (N = 36)	Flipped (N = 32)	Online (N = 24)
Sex				
	Male	57%	48%	29%
	Female	43%	52%	71%
Average hours spent reading per week				
	0	3	3	0
	1–5	70	56	33
	6–10	14	34	58
	11–15	8	3	0
	16–20	3	0	4
	21–25	0	3	4
	26–30	0	0	0
	>30	3	0	0
Average hours spent writing assignments				
	0	0	4	0
	1–5	68	78	62
	6–10	22	11	25
	11–15	8	4	8
	16–20	0	4	4
	21–25	0	0	0
	26–30	0	0	0
	>30	3	0	0
Average hours spent studying for exams				
	0	0	0	4
	1–5	44	31	25
	6–10	39	41	46
	11–15	6	9	12
	16–20	8	9	8
	21–25	0	3	0
	26–30	0	3	0
	>30	3	0	4

Another set of questions sought to understand students' course engagement with the material and their peers. Flipped classrooms are designed with the intention of increasing student engagement and satisfaction. Yet, in this study, students in the flipped classroom felt less engaged compared with students in the traditional and online classroom (see Table 2). However, if student responses of "yes" and "sometimes" were added, the comparisons were similar.

Students were also asked about working with others (see Table 3). The questions asked for their perception about how often they applied the class to something outside of class, asked other students for help or studied with other students, and how often they worked with students on projects and assignments. The students in the flipped classroom reported working with other students on projects and assignments (31%) more than the other two sections (3% in the traditional class and 0% in the online class), which supports the way the class was structured. However, the students in the online class reported applying the material from the class outside of the class more than the

Table 2. Percentages for perceptions of engagement.

Variable	Code	Traditional (N= 36)	Flipped (N= 32)	Online (N= 24)
Do you feel you were engaged?	Yes	68	42	79
	No	5	6	8
	Sometimes	27	52	12
Do you feel you will retain the material?	Yes	94	90	86
	No	6	10	14

Table 3. Percentages for personal development and skills gained (specific behaviors).

Variable	Code	Traditional (N= 36)	Flipped (N= 32)	Online (N= 24)
How often did you:				
Apply the class to something outside of class	Very often	11	6	21
	Often	35	29	42
	Sometimes	46	61	38
	Never	8	3	0
Ask another student to help you understand	Very often	0	6	0
	Often	8	38	0
	Sometimes	46	44	12
	Never	46	12	88
Explain course material to another	Very often	3	3	0
	Often	25	38	4
	Sometimes	58	56	17
	Never	14	3	79
Prepare for exams by working with others	Very often	8	9	0
	Often	22	28	5
	Sometimes	30	47	14
	Never	41	16	79
Work with students on projects or assignments	Very often	3	31	0
	Often	0	41	4
	Sometimes	22	28	9
	Never	75	0	87

students in the traditional or flipped classes (21% of online students as opposed to 11% of students in the traditional class and only 6% of the students in the flipped classroom).

Additionally, when students were asked whether they felt they would retain the course material beyond the class, students in the traditional classroom (94%), the flipped one (90%), and the online one (86%) indicated that they would. Surprisingly, the students in the flipped

Table 4. Percentages for personal development and skills gained (specific skills).

Variable	Code	Traditional (N = 36)	Flipped (N = 32)	Online (N = 24)
How much has this class contributed to:				
Writing clearly and effectively	Very often	11	3	4
	Often	27	10	33
	Sometimes	38	52	50
	Never	24	35	12
Speaking clearly and effectively	Very often	3	3	0
	Often	22	13	14
	Sometimes	33	65	45
	Never	42	19	41
Thinking critically and analytically	Very often	19	3	0
	Often	46	13	14
	Sometimes	30	65	45
	Never	5	19	41
Acquiring job- or work-related knowledge	Very often	8	3	4
	Often	24	32	33
	Sometimes	46	48	29
	Never	22	16	33
Working effectively with others	Very often	3	10	0
	Often	23	45	22
	Sometimes	37	39	26
	Never	37	6	52
Solving complex real-world problems	Very often	6	20	5
	Often	42	20	18
	Sometimes	36	40	59
	Never	17	20	18
Being an informed and active citizen	Very often	19	20	5
	Often	47	40	41
	Sometimes	22	33	45
	Never	11	7	9
Learning effectively on your own	Very often	16	10	22
	Often	35	33	52
	Sometimes	30	47	17
	Never	19	10	9

classroom were in the middle of the three sections instead of having more students retain the information, which is one of the theoretical assumptions of the flipped classroom's appeal (see Table 4).

Again, another subset of questions asked students about potential areas of personal development and skills gained from class. These included questions about writing and speaking clearly and effectively, thinking critically, acquiring job- or work-related knowledge, working effectively with others, understanding diverse people/backgrounds, solving complex real-world problems, being an informed and active citizen, and learning effectively on their own.

Nineteen percent of traditional students, 3% of students in the flipped classroom, and 8% of students in the online one recorded that their class experience “very much” contributed to thinking critically and analytically. The flipped classroom was designed for critical thinking, yet 19% of the students in the flipped classroom said the class never contributed to critical thinking. When asked about acquiring job- or work-related knowledge, 8% of students in the traditional classroom, 3% of students in the flipped one, and 4% of students in the online one indicated “very much” (see Table 4). This is a bit surprising considering that Chief of Police came to the flipped classroom to explain how to get a job in law enforcement, and a juvenile probation officer explained how to get an internship position with the county office, where the other two classes did not have this privilege.

Equally surprising was the responses to understanding diverse people/backgrounds. Sixteen percent of students in the traditional classroom revealed that the class contributed “very much” to understanding diversity, where 7% of students in the flipped one and 9% of students in the online one indicated the same. The students in the traditional classroom tended not to talk to one another in the classroom unless it was required for an assignment. However, the students in the flipped classroom were forced to interact with their peers in a consistent and frequent basis.

Finally, when students were asked whether the class set-up contributed to them learning on their own, 41% of students in the traditional classroom responded “very much” or “quite a bit,” 43% of students in the flipped classroom responded “very much” or “quite a bit,” and 74% of students in the online one responded “very much” or “quite a bit.” It might have been assumed the percentage would be higher for the flipped class since they had to read the chapters and watch the lectures on their own. The class was set up to promote self-directed learning, so 43% was not as high as originally hypothesized.

Discussion

According to research, the flipped classroom environment is thought to encourage more student engagement and increase student satisfaction. Student engagement is one form of active learning, which some believe is best suited for learning (Bradford, 2005). Considering that the three different sections were taught by the same instructor during the same academic year, it was a bit perplexing that the students in the flipped classroom did not score higher on many of the theoretical constructs that the flipped environment was intended to help students to accomplish.

It was hypothesized that the students in the flipped class would report higher responses on the student engagement questions than either the students in the traditional class or the online one. However, 42% indicated that they were emphatically engaged, 6% responded “no,” and 52% responded “sometimes.” Compared with both the online and traditional settings, these scores were surprisingly lower. Additionally, students in the flipped classroom were very similar on their responses to questions seeking personal development from the class. It was thought that students in the flipped classroom would “gain” more skills via the flipped environment, but this was simply not true. In fact, students in the flipped classroom registered a much lower understanding of diverse people and/or diverse backgrounds when compared with students in the traditional classroom. Although the flipped classroom utilized active learning to promote critical thinking, the number of students who reported critical thinking and analytical skills was surprisingly low. These findings are contrary to much of the literature.

This study supports what Ebbeler (2013) found, namely, that the students who were in the traditional class did not dislike the lectures and the students in the flipped class were not prepared for the transition. Although they verbally reported liking the flipped class, a majority of them were not watching the lectures at home. They were not taking an active role in their education outside of the classroom, which reinforces Babcock and Marks' (2010) findings relating to the decline of student study time. This was similar to what Hermann (2013) found with her study of cooperative learning, that students with a transmission conception of teaching and learning oppose cooperative learning. Students may appear to engage more actively in discussion but it does not mean that the cooperative learning increased their cognitive activity. Although students are more engaged in the flipped classroom, it is necessary to obtain buy-in from students the first day of class (Gilboy et al., 2015). Specifically, students need to understand the what, why, and how as they pertain to the flipped classroom (Gilboy et al., 2015) and oftentimes need to be taught how to work in groups effectively (Burke, 2011) and how to self-direct their learning (Warburton and Volet, 2013).

The flipped classroom is based on the foundation that students arrive to class prepared and ready to learn. Because "flipping" the classroom relies on the agency of the student to participate in active learning and application, the student must have attempted to learn the material prior to class time. However, this is not always the case and students often arrive at class unprepared. This is one of the biggest barriers to flipped classrooms (Bristol, 2014; Ebbeler, 2013; Kim et al., 2014).

Because the concept is relatively new and still evolving, little research is available to guide best practices (Bull et al., 2012). Therefore, this study provides a good amount of insight into delivering nontraditional classroom instruction through trial and error and various limitations. One limitation relates to the level of the class. Perhaps the upper division class was not the appropriate venue for this changed instructional method. The students were largely seniors who had experienced the traditional method of lecture-based classes for their entire university career. Perhaps, it was too drastic a change for one of their final classes. Future exploration of the flipped method might want to begin in the lower division classes when the students are new to university and have not established their learning routine. Flipped classes require students to assume more responsibility over their education (Roehl et al., 2013), and many students are not prepared to relinquish the passive nature of lecture-based classes.

Similarly, educators may not be ready for flipped classes. As Hamdan et al. (2013) reported, the instructor of this course missed the Socratic method of the face-to-face class. It was challenging to devote entire classes to activities rather than engaging in content and information dissemination. Westermann (2014) was able to bridge this gap with a blended classroom where a collaborative learning and classroom discussion was brought in to augment lecture delivered once a week. The blended, hybrid, or "half-flipped" method encouraged critical thinking and a student-centered approach. It appeared to provide a balanced educational approach.

Although the study described in this article was explanatory and descriptive in nature, Moodle only permitted aggregate data for the students' responses. It would be interesting to uncover whether there are differences among the students that contributed to these differences between the three different sections. With more robust data, future research might reveal different variables associated with the varying responses, and yield suggestions for a flipped classroom that meets the individual needs of the students. Similarly, it cannot be discounted that self-report data come with inherent bias. Since a majority of the work associated with the flipped classroom was group work, students might have a negative experience with this type of learning style. As Hillyard et al. (2010) found, students might bring with them a negative attitude toward group work not because of the experience in the present, but because of past experiences. Past experiences color their whole attitude with the collaborative learning experience. Furthermore, the scope of this study was moderate at best. One criminology class offered three times over the span of one academic year yields a

small sample, which is not necessarily generalizable. In all, 18 students did not complete the survey (4 from the traditional section, 9 from the flipped class, and 5 from the online version). It is unknown whether those students had different experiences in the classes, which would change the results of this study. Relatedly, since these results were gathered from undergraduate students from only one discipline from one university in one country, the results might not be generalizable to other regions, cultures, disciplines, or class level. Future work is needed in terms of looking at the flipped classroom in different disciplines, at different levels of study, and in different countries/cultures.

As previously noted, because of the novelty of this teaching approach, there is limited educational outcome research on the effectiveness of the flipped classroom (Gilboy et al., 2015). Research shows that active learning environments promote student learning and engagement. For educators, the challenge is tailoring a class environment to meet the changing needs and learning styles of the students. This is especially relevant with the increased attention on competency-based learning and personalized learning assessments. Many higher education-accrediting bodies have shifted their emphasis from teaching methodologies to assessing student learning (Dunning, 2014), but with a guided approach to curriculum delivery, methodology and student learning outcomes are two sides of the same coin. It is important to provide support, clear goals, and possibility for independent study when attempting to induce a deep learning approach by means of a student-centered learning environment. However, what is the right number and how these objectives are delivered need to be finessed and calculated (Baeten et al., 2010). Delivering course content in the right way at the right time to the right student is the goal.

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