MILLENNIAL STUDENTS AND THE FLIPPED CLASSROOM

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ABSTRACT
Research suggests that millennial students have a preference for interactive and experiential-learning experiences. An increasingly popular approach to meeting the learning needs of this generation of college students is referred to as "flipping the classroom". The flipped classroom approach generally involves the preparation of short audio or video lectures, which students review before coming to class. Since students perform the information gathering portion of learning outside the classroom, professors are able to devote class-time to the application of that knowledge using active learning techniques.

The purpose of this paper is to examine the flipped-classroom approach to teaching accounting to the millennial generation of students and to explore accounting-students' attitudes towards this increasingly popular instructional approach. We conducted a survey of accounting majors at an AASCB accredited metropolitan university located in the Northeast. Students were asked questions about prior experiences and attitudes toward the flipped classroom. The results of the survey suggest that students are mostly exposed to lecture paradigm, but prefer to learn by doing than by listening. Students who have not experienced the flipped classroom also appear to be open to the idea and acknowledge the potential benefits. Finally, we also find evidence that students are exposed to a variety of teaching technologies in their accounting courses. Collectively, the results support the use of the flipped classroom approach.

INTRODUCTION

The millennial generation has garnered a tremendous amount of attention for their unique characteristics compared with previous generations. One of the main differences is that millennials were born into a world where technology is ubiquitous. The literature on millennials uniformly suggests that, as educators, we must understand this new generation of learners in order to educate them effectively.

Research suggests that millennial students have a preference for interactive and experiential-learning approaches. Flipping the classroom has become an increasingly popular approach to meeting the learning needs of this generation of college students. This paper will examine the flipped-classroom approach to educating the millennial generation of students and will explore accounting-students' attitudes toward this emerging pedagogy. Results of a survey of graduate and undergraduate accounting students' attitudes about the flipped classroom and other active-learning techniques will be presented.

The paper is organized as follows: a description of the characteristics of millennials is presented, followed by a history and description of the flipped-classroom pedagogy and a brief review of the literature. The research design and survey results are presented next, followed by limitations, possible extensions, and our conclusion. A compendium of resources is provided for faculty who might want to experiment with the flipped classroom.

MILLENNIAL STUDENTS

Millennials were born between 1982 and 2005 (Howe & Strauss, 2007) and represent the largest generation in U.S. history with a projected population size in excess of 100 million (Howe & Strauss, 2003). The millennial generation is considered to be unique in many ways, not the least of which is their reliance on technology. Never knowing a world without computers and the Internet, millennials don't see them as tools, but rather as integral parts of their lives (Merritt, 2002, p. 46).

Since millennials began entering higher education in the year 2000, it has become increasingly clear that this unique generation of students requires and expects a different approach to learning. Researchers agree that millennial students will change the landscape of higher education in permanent and irreversible ways.

Commonly described in the literature as smart, ambitious, incredibly busy, multi-taskers, ethnically diverse, and digitally literate, millennials think it is cool to be smart, are always connected, expect immediate/instant access and responses, and have a preference for experiential and engaging learning environments. According to Howe & Strauss (2003), the seven core traits that define the millennial generation are: special, sheltered, confident, team-oriented, conventional, pressured, and achieving. Grades and good performance are very important to millennials and they expect to have what they need, when they need it to succeed academically. Colleges and universities must understand and respond to these needs in order to effectively educate today's students.

There is a growing body of research on the millennial generation and how their distinctive characteristics and learning styles are forcing institutions of higher education to rethink the traditional, lecture-type approach to education. To address the needs and expectations of millennials, many faculty members are adjusting their instructional approach to be more engaging and experiential-based. Skiba & Barton (2006) state that the unique characteristics of millennials "are challenging the traditional classroom teaching structure, and faculty are realizing that traditional classroom teaching is no longer effective with these students" (p. 3).

FLIPPED CLASSROOM

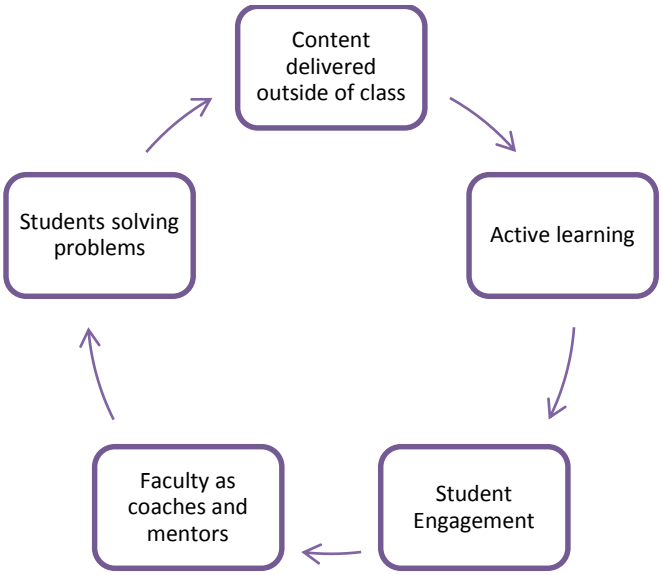
Flipping the classroom has become an increasingly popular approach to meeting the learning needs of millennial college students. The concept of the flipped classroom was started in 2007 by two high-school chemistry teachers, Jonathan Bergmann and Aaron Sams, at a Colorado high school. After learning about the ability to use PowerPoint with voiceovers and annotations, the two teachers began recording their live lessons using screen-capture software and posting them online for their students to access (Bergmann & Sams, 2012). What began as a solution to helping students who missed classes to stay on top of their learning turned into an innovative and transformative approach to teaching and learning that has caught on globally, at different education levels and in a variety of subject areas.

Using the flipped-classroom model, online audio or video lectures take the place of in-class lectures and class time is reserved for active-learning assignments. Students watch the videos prior to coming to class, freeing up class time for discussions, hands-on application, problem

solving, games, and other engaging and collaborative activities. In the flipped classroom, the teacher's role changes from lecturer and deliverer of content to learning coach, guiding students through a series of engaging and experiential-learning activities. The focus is on learning rather than teaching and the approach has been found to increase overall interaction among students and between student and teacher.

Figure 1 presents a visual of the flipped-classroom model. This pedagogical approach seems to align well with the learning preferences of millennial students.

Figure 1. The Flipped-Classroom Model.



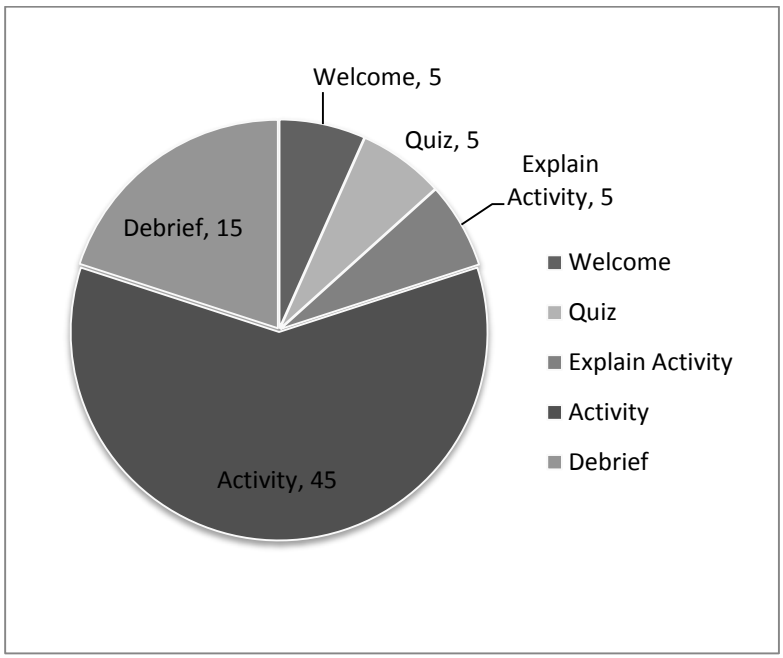
Implementing the flipped classroom approach can be time consuming. Steed (2012) suggests starting small and moving away from lectures to more active-learning methods one lesson at a time. There are many ways to make lessons available for students; faculty can record their own videos or screencasts, use online videos (i.e., Khan Academy), or use lecture notes. To keep students' attention, recorded videos should be kept to around 20 minutes in length. Since lectures are delivered online, they should not be repeated in class. Class time is devoted purely to active and collaborative assignments.

Screen-capture software, such as Camtasia, Adobe Captivate, Jing, and others, can be used to create the digital lectures, which can be accompanied by digital presentations, Excel spreadsheets, and other relevant materials. Faculty can also demonstrate problem solving using these software programs. Accountability for completing pre-class assignments can be monitored using automatically-graded, unit-based online quizzes. Not only does this step motivate students to take the preparation seriously, it also provides the faculty member with important information that can inform subsequent planning for course activities and topic review. If students are experiencing a problem with a particular topic, this can be addressed by a mini-lecture in class followed by active practice assignments. Frydenberg (2012) suggests counting the quizzes toward the final grade to motivate students.

In-class assignments are often completed in groups of 3-6 students. Faculty move among the groups, providing guidance and answering questions in a just-in-time approach; providing

explanations at the exact time students need them. If several groups are struggling with the same concept, the instructor can provide explanations to the entire class on the concepts needed to continue the lesson (Frydenberg, 2012). Frydenberg (2012) also suggests a debriefing at the end of class where students share how they did the assignment and what problems they faced. See Figure 2 for suggested structure for a 75-minute class (Frydenberg, 2012).

Figure 2. Suggested Structure for 75 Minute Class.



Several of the Seven Principles for Good Practice in Undergraduate Education are addressed by the flipped-classroom model, including: encouraging student-faculty contact, encouraging cooperation among students, and encouraging active learning. Frequent student-faculty interaction motivates students to engage with their class work, as does collaboration and sharing of ideas with other students. Active learning improves student understanding as they talk about their work and make what they are learning part of themselves (Chickering & Gamson, 1987).

Active learning refers to any instructional method that engages students in meaningful learning activities that require students to think about what they are doing and generally involves activities that are introduced in the classroom (Prince, 2004). Active learning is associated with deep learning whereby students develop a personal understanding of the material rather than simply retention of knowledge. By contrast, passive learning is considered surface learning, whereby students receive information by listening to an instructor. Passive learning does not facilitate deep learning (Lucas, 1997).

Four important features of active learning, as summarized by Lucas (1997), are: search for meaning and understanding, a greater student responsibility for learning, a concern with skills as well as knowledge, and an approach to the curriculum which looks beyond graduation to wider career and social settings (p. 189). Such deep learning and personal engagement with content material is important for accounting students as accounting educators are expected to prepare students for a rigorous and complex profession that must keep pace with the dynamic and ever-changing business environment.

According to a review of the literature conducted by Prince (2004), there is considerable evidence to support the effectiveness of active learning in improving students' recall of information and the effectiveness of student engagement in improving academic performance. Prince (2004) cites several studies, Hake, 1998; Redish, Saul, & Steinberg, 1997; and Laws, Sokoloff, & Thornton, 1999, to support the effectiveness of active-engagement teaching methods.

Benefits of the flipped classroom strategy include: increased time for engaging instruction (Milman 2012); students can study at their own time and pace rather than listen to a lecture on a topic that they already understand and can view lectures on mobile devices whenever they are ready (Frydenberg, 2012; Steed, 2012); lectures can be viewed as often as needed to understand a topic, and recorded lectures are more time efficient (Frydenberg, 2012). Milman (2012) suggests that the flipped classroom technique is good for teaching procedural knowledge, which is knowledge about how to do something, such as solving an accounting problem.

The literature cautions about the limitations and pitfalls of flipping the classroom. Such limitations may include: poor quality of video lectures compared with a face-to-face setting; student technology issues and conditions under which they might view the video (i.e., in front of TV, distracting surroundings); students may not watch the video before class; instructor and peers are not available to answer questions during video viewing; and difficulties for second language learners or those with learning disabilities (Milman, 2012). Other pitfalls might include faculty initial preparation time; increased responsibility on students for their own learning can leave some students feeling uncomfortable or abandoned; culture shock for students accustomed to rote, lecture-style learning; and student resistance to taking on the increased responsibility for learning (Talbert, 2012).

Despite these limitations, however, the flipped-classroom pedagogy has captured the interest of faculty at all educational levels. According to an article in Long Island Business News (Starzee, 2012), the flipped-classroom approach is being implemented in several colleges and universities on Long Island and the New York Institute of Technology has introduced an advanced certificate that features flipped-classroom concepts for teachers who want to integrate technology into their classes.

Although the concept is relatively new, research on the effectiveness of the flipped classroom is growing. In a review of the literature, Talbert (2012) found evidence that the flipped classroom helps college students learn more effectively. Studies of University of California at Irvine large-lecture biology classes and a linear algebra class at Franklin College found significantly higher academic achievement using flipped classroom techniques as compared with traditional lectures. And students in a Miami University software engineering class showed strong self-ratings of their abilities to write application software after learning in a flipped-classroom environment.

Frydenberg (2012) implemented the flipped-classroom pedagogy in an introductory Information Technology course with an emphasis on learning Excel and found that the instructional methods captured students' interests, challenged them, and contributed to their learning. Although the author does not claim increased learning compared with the traditional classroom, student feedback suggests that the flipped-classroom approach was more engaging than listening to an in-class lecture.

Also with respect to student preferences for learning course material, in a study conducted by Nicholas (2008), survey results from 102 college students reveal that over 90% of respondents preferred a mixture of course activities, including lecture, group work, discussion, and problem

solving. Problem solving was found by 92.3% of students to be helpful in learning course material.

RESEARCH DESIGN

To query Millennial students' attitudes and experiences with the flipped classroom and active learning strategies a survey was administered to accounting majors at a national AACSB accredited metropolitan university located in the Northeast. The email addresses of juniors, seniors, and graduate accounting majors were obtained and students were contacted by email and directed to the survey site. Approximately two weeks after the initial contact, follow-up requests were sent. In total, 125 responses were received from 741 accounting majors contacted, resulting in an approximate response rate of 17%. A copy of the survey instrument is available from the authors.

The survey collected demographic information about the participants and asked ten questions about the students' experiences in their accounting courses and attitudes toward the flipped classroom. The demographic information revealed that the participants were closely split in gender with 48% female participants and 52% male participants. Most of the participants were graduate students 83/125 (66%). The number of accounting courses completed by the participants was quite high, with 64% of all participants reporting having completed six or more accounting courses.

RESEARCH QUESTIONS

Although the extant literature provides evidence on millennial student characteristics, our survey attempts to solicit the students' perception about learning and the flipped classroom. Our questions focus on three key areas. The first area is the students' perceptions about their current and past accounting course delivery. The second area we focus on is the students' experience and attitudes towards the flipped classroom. Finally, we asked the students to provide one suggestion to improve learning in their accounting courses. Our research questions stated formally are as follows:

RQ1: What are millennial accounting students' perceptions of the course delivery in their accounting courses?

RQ2: Are millennial accounting students familiar with the concept of the flipped classroom?

RQ3: What suggestions do millennial accounting students have for their professors in terms of content delivery and course execution?

RESULTS

Research question 1 (RQ1) attempts to solicit the participants perceptions about the delivery of their accounting courses. The results of our main questions to provide evidence on this research question are presented in Table 1. The results suggest that millennial accounting students in our survey share many of the same preferences suggested by the extant literature on millennial students. The participants appear to value active learning, with 71% agreeing or strongly agreeing that they enjoy doing different things in class rather than listening to lectures. Also consistent with prior research is the response that a lecture-based paradigm appears to be very prevalent among survey participants, with 91% reporting that their classes are mostly made up of class lectures. Student also responded quite negatively to the proposition that their course grade should be comprised primarily of exam assessments. Approximately 68% of participant either strongly disagree or disagree that grading should be comprised primarily of exams. This result suggests

that the participants desire to have additional components, such as group papers, individual assignments, and other projects comprise the grading structure.

Table 1 - Students' Responses to Course Delivery Questions

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
My classes are mostly made up of class lectures	0%	0%	8%	55%	36%
I enjoy doing different things in class rather than listening to lectures	3%	8%	19%	40%	31%
I learn best by doing rather than by listening	2%	8%	15%	37%	40%
I prefer my grade to be determined by exam scores	29%	39%	17%	15%	0%
The level of difficulty in my accounting courses is about right	0%	3%	21%	64%	11%

In research question 2 (RQ2) we seek to gain an understanding of students' awareness of the flipped classroom and their perceptions and attitudes regarding same. We ask a number of questions (untabulated) to gauge these factors. First, we describe the concept of the flipped classroom and then ask participants if they have heard of this concept. The results indicate that most students are not aware of the flipped classroom, with 71% of participants reporting that they have never heard of the flipped classroom. This result is not surprising as many educators are also not familiar with the flipped classroom. We then asked if the participants experienced a flipped classroom and 18% indicated experience with a flipped classroom. We then asked these participants how helpful they found the flipped classroom. The results suggest that 68% of the participants found the flipped classroom to be either effective or very effective. Finally, we asked those participants that have not experience a flipped classroom if the flipped classroom sounds like something that would help them learn better. Out of the 102 participants 74% responded that the flipped classroom sounded like a good idea and would be willing to experience a flipped classroom. Overall, the results suggest a general lack of knowledge about the flipped classroom, but a willingness to attempt this type of classroom learning style. Those students that experienced a flipped classroom appear to have had positive experiences.

To address research question 3 (RQ3), we asked an open ended question which allowed the participants to provide one suggestion to improve learning in their accounting courses. The results were coded for commonalities and the most common comments are summarized in the following table.

Table 2 - Summary of Recommendation by Students (n=81)

	Number of Responses	%
More interaction in class, more problems, and less lecturing	31	38%
Improve course delivery and/or content of materials	18	22%
Decrease pace that material is covered in class	13	16%
Connect material covered in class to professional practice	12	15%

The results in Table 2 suggest that millennial accounting students appear to want more interaction in class with their professors and less lecturing. Also important to participants was an overall improvement in the course delivery and content of materials. Students generally wanted either lectures and/or lecture materials provided online and not during class time. Students also asked for videos and other resources to supplement the materials covered in class. Overall, the participants' main suggestion is for professors to lecture for less time and include more active learning experiences in the classroom. This result is consistent with the extant literature on the characteristics on millennial students. In addition to the summary presented in Table 2, we provide a random sample of student responses to the open-ended question in Table 3 as follows:

Table 3 - Selected Student Recommendations to Improve Learning

"Don't read from PowerPoint...I zoned out before the second slide."
"Instead of reading the chapter word by word, do problems on the board!"
"Try to relate the material to the real world or explain how it would be applied to actual tasks."
"Give PowerPoint and lecture notes online."
"Would like more real life accounting skills added to courses."
"Try to engage students in the material by answering questions, rather than consistent lecturing."
"Less lectures and more engaging example problems."
"Be interested in what you are teaching, otherwise everyone is bored."
"Go over the homework problems step-by-step on the board."
"Use online lectures."
"I recommend that there are more problems being covered during classtime."

As the above comments reveal, many students have a very negative opinion about lecturing and also about the use of PowerPoint in the classroom. The comments also suggest that providing online lectures and other materials online would be helpful to students in the learning process.

LIMITATIONS AND EXTENSIONS

This paper includes background information about the flipped classroom as well as an exploratory study examining students' perceptions and experiences in regards to the flipped classroom. In as much as the survey participants are from one University, our finding and results may not extend to other settings. In addition, although the students who participated in the survey are from varied backgrounds and are from ethnically diverse backgrounds, we cannot rule out other factors that may bias our findings. Natural extensions of this study include extending the survey to educational institutions across a variety of settings and formalizing the study to include testable hypotheses.

CONCLUSION

The flipped classroom is essentially part of a broader conceptual framework of teaching which promotes the use of active learning in the classroom and students being responsible for the information gathering portion of learning outside the classroom. In this respect, professors and other educators have been "flipping the classroom" long before this term gained popularity in the educational vernacular. The advent of video software and increased Internet bandwidth, however, has increased the opportunity for educators to create high-quality online content so that classroom time can be devoted to engaged student learning.

The results of our survey suggest that millennial accounting students are exposed mostly to a lecture-based paradigm in their accounting courses rather than a more active learning approach as espoused by the flipped classroom advocates. Students appear to be open to new technologies in the classroom and express a desire for professors to provide more hands-on and practical applications of the accounting content covered in their courses. In addition, millennial accounting students in our survey appear to value video lectures as a source for content delivery. This result may be indicative of the generation's familiarity and enjoyment of being provided with a variety of visual inputs. Overall, the results of the survey suggest that the flipped classroom may be an effective method of engaging future accounting students from the millennial generation.

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Talbert, Robert (2012). "Inverted Classroom." *Colleagues* , Volume 9, Number 1, Article 7, http://scholarworks.gvsu.edu/colleagues/vol9/iss1/7

COMPENDIUM OF "FLIPPED CLASSROOM" RESOURCES

Books:

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Edutopia blog entry, Five Best Practices for the Flipped Classroom: www.edutopia.org/blog/flippedclassroom-best-practices-andrew-miller

The Khan Academy (Examples of educational screencasts) https://www.khanacademy.org/

Learning Catalytics, Harvard University: (registration required) http://atg.fas.harvard.edu/icb/icb.do?keyword=atg&pageid=icb.page581666

Sams & Bergmann, Flipped Learning Network: http://flippedlearning.org

TEDEd (Tutorials on how to create a lesson for a flipped classroom) www.ed.ted.com

Software:

Adobe Captivate	Commercial software package useful for creating screencasts.
Audacity	FREE audio recording program that allows the user to create audio recordings on the fly.
Camtasia	Commercial software package useful for creating screencasts
Jing	FREE software by creators of Camtasia that allows for screencast creation of up to five minutes long.
Screencast-o-matic	FREE web-based software application that allows for screencast creation up to 15 minutes. Allows you to capture screen, webcam, and audio. Users are able to publish to popular.
Screenr	FREE web-based software application that allows for screencast creation up to five minutes.
YouTube	Excellent resource to upload screencasts for sharing with your class. We recommend making the videos private and only shareable with a link provided by the instructor.