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"Then What Am I Paying You For?" Student Attitudes Regarding Pre-Class Activities for the Flipped Classroom

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Existing research on student acceptance of the flipped classroom in higher education is somewhat equivocal: some students appreciate the opportunities for active learning that a flipped classroom affords, whereas others expect their learning to occur via in-class lectures. The current study sought to disentangle some of these mixed results by manipulating aspects of hypothetical flipped and traditional classroom environments through a vignette comparison approach. In the first study, a third of the participants reported a preference for a flipped classroom that utilized video lectures as the primary pre-class preparation activity, in comparison to a traditional classroom characterized by at-home reading and in-class lecture. In contrast, the second study demonstrated that half of the sample preferred the flipped approach when the pre-class participation activity was presented as a menu of choices including, but not limited to, video lectures. Across both studies and class preferences, quantitative and qualitative analyses indicated that participants believed they would learn more in their chosen class environment, and they attributed more positive personal characteristics to their preferred instructor. Implications for instructors contemplating a switch to the flipped classroom from a more traditional approach are discussed.

If the quantity of news articles and professional development seminars regarding an instructional method is any indication of that method's quality, then all instructors should immediately adopt the flipped classroom. The reality, however, is that few well-controlled studies of the flipped college classroom exist (Hamdan, McKnight, McKnight, & Arfstrom, 2013), and the results of such studies are somewhat equivocal in terms of the effectiveness of the strategy. That is, although instructors assume that the inclusion of at-home video lectures will be a welcome change for today's tech-savvy students, and although many students do embrace this pedagogical innovation, some college-level "flippers" have reported *decreased* or equivalent student engagement when compared to more traditional formats (O'Flaherty & Phillips, 2015). Because the flipped classroom can be very time-consuming to implement (i.e., many new "flippers" find themselves in the position of creating new sets of both in- and out-of-class activities), it is essential that we continue to examine the conditions under which flipping is and is not effective. The current mixed methods study utilizes vignette comparisons to examine student attitudes regarding different types of pre-class activities in flipped classrooms.

The Flipped Classroom

In a traditionally structured course, class time is often dedicated to the absorption of content through instructor-led lecture, and time outside of the classroom focuses on homework assignments for which students are expected to utilize higher levels of cognition (McGivney-Burelle & Xue, 2013). In contrast, a flipped course assigns the absorption of content for homework, thus freeing up class time for interaction and application. The most common presentation of such an inverted classroom utilizes pre-recorded video lectures to disseminate out-of-class content, although some have maintained that it is the timing and location of the learning activities and not the format of the learning materials that determines the flipped classroom (Kim, Kim, Khera, & Getman, 2014). Regardless of format, in-class activities in the flipped classroom are thought to promote the development of higher-order thinking skills, whereas time spent outside of class targets lower-order cognition (McGivney-Burelle & Xue, 2013).

Currently, most information regarding the flipped classroom is disseminated using news articles and websites (Hamdan, McKnight, & Arfstrom, 2013), but preliminary work targeting its effects on the learning and motivation of college students has started to accumulate. Thus far, experimentation with the flipped college classroom has favored STEM domains such as biology, calculus, physics, and statistics (Gilboy, Heinerichs, & Pazzaglia, 2015; Jungic, Kaur, Mulholland, & Xin, 2015; McGivney-Burelle, & Xue, 2013; Moravec, Williams, Aguilar-Roca, & Dowd, 2010; Stelzer, Brookes, Gladding, & Mestre, 2010; Talley, & Scherer, 2013; Wilson, 2013). Results of these and other studies have been somewhat equivocal with regard to the efficacy of the flipped classroom. That is, although comparisons of course performance in flipped and traditional classrooms sometimes give the flipped classroom an edge (e.g., Baepler, Walker, & Driessen, 2014; Deslauriers, Schelew, & Wieman, 2011; Moravec et al., 2010; O'Flaherty & Phillips, 2015; Peterson, 2016), some studies have found no performance advantage to flipped

classrooms at all (e.g., Clark, 2015; Findlay-Thompson & Mombourquette, 2014; Leicht, Zappe, Litzinger, & Messner, 2012; Morin, Kecskemety, Harper, & Clingan, 2013; Rais-Rohani & Walters, 2014).

In addition to ambiguity regarding the academic outcomes of students in a flipped classroom, the literature indicates similar confusion regarding motivational and engagement outcomes. In terms of motivation, the logical assumption is that students will find the flipped classroom more engaging than the traditional format. Shifting lecture outside of class frees up time for in-class group work and hands-on activities that students seem to enjoy. Some work corroborates this assumption, as students in a calculus course praised the flipped classroom for its engaging and exciting environment (Jungic et al., 2015). This finding was echoed in the work of Kim and colleagues (2014), who found that students in flipped classrooms rated the learning environment as student-centered. Additionally, Wilson (2013) reported that participation in a flipped classroom environment was associated with a decrease in undergraduates' reported level of anxiety in their statistics course.

Despite these encouraging findings, some work suggests that not all students prefer to learn in a flipped classroom environment. Students new to the flipped classroom may approach this departure from traditional formats with frustration and resistance, which results in decreased ratings of student satisfaction (Ferreri & O'Connor, 2013; Gilboy et al., 2015; Herreid & Schiller, 2013; Missildine, Fountain, Summers, & Gosselin, 2013). In his study of the effects of learning in an inverted classroom, Strayer (2012) indicated that college students in the flipped section of his statistics course reported lower levels of satisfaction with the organization of learning tasks in comparison to students in the traditional section. In addition to lower course satisfaction, some learners may see the shift toward self-guided learning and lack of direct instruction as initially unreasonable (Peterson, 2016); although pedagogical experts recognize the superiority of student-centered learning environments, some students are reluctant to embrace a shift away from teacher-directed learning (Wilson, 2013).

The Current Study

It seems that instructors are at a crossroads: we have been presented with a new pedagogical approach associated with much media chatter and a high level of face validity but with mixed empirical results. Additionally, full implementation of the flipped model takes a lot of effort on the part of the instructor: effort that may not be rewarded with concomitant increases in student performance, motivation, or satisfaction. Instructors who flip their course for the first time often find the process to be lengthy and time consuming (Hoffman, 2014; Hussey, Richmond, & Fleck, 2015; Mason, Shuman, & Cook, 2013; Schlairet, Green, & Benton, 2014). Creating, editing, and posting lecture videos and developing in-class activities that target higher-order cognition are tasks that instructors may not be accustomed to incorporating into traditional course preparation (McGivney-Burelle & Xue, 2013). As such, is it fair to ask instructors to commit to flipping their courses, a task which requires so much of an instructor's already insufficient time, when we are not sure of the efficacy of an inverted classroom in the first place?

To contribute to the literature on the flipped classroom, and to clarify why some instructors are met with student praise for a flip, whereas others are met with consternation, two mixed methods studies were devised. In Study 1, we asked students to rate the quality of two hypothetical instructors of an introductory psychology class—a traditional instructor who utilizes in-class lectures with at-home application activities and a flipped instructor who assigns video lectures for homework and application activities in class. This approach allowed us to assess the following research questions: 1) If given the choice, which learning environment would college students prefer: a flipped classroom or a traditional classroom?, 2) What assumptions do college students make about instructors, given the course format they utilize?, and 3) What drives student preferences in course choice?

As presented below, we were surprised by the class preference data collected in Study 1, so we designed a follow-up study to examine whether an expanded definition of the flipped classroom (Hussey et al., 2015; Kim et al., 2014) would alter classroom preference. That is, instead of confining pre-class activities to the viewing of video lectures, we included a menu of potential preparation activities from which the students could choose. Because some students see the viewing of video lectures as unnecessarily time-consuming (O'Flaherty & Phillips, 2015), we formulated a final research question: 4) Do students prefer the flipped classroom approach when pre-class preparation includes, but is not limited to, video lectures?

Study 1

Method

Participants. One hundred fifty-nine undergraduate students (99 females; 60 males) from a master's/comprehensive university participated in this study. The sample was comprised of 83 freshmen, 38 sophomores, 28 juniors, and 10 seniors. Race and ethnicity data were not obtained in this study, but the university from which the sample was drawn had a student population that was 84% white at the time of data

collection. Participants came from a departmental subject pool consisting of several hundred students, each of whom was taking one or more psychology courses at the time of the study. Research participation was included among several options afforded to students in partial fulfillment of course requirements. The authors of this study were not teaching any of the participants at the time of data collection, which spanned a full academic semester.

Materials and procedure. Approval from the Institutional Review Board was obtained for the following research procedures. After indicating consent to participate via an online survey, participants were asked to select which of two instructors they would prefer if given the choice of instructor for an introductory psychology course. Participants were informed that the instructors are equivalent in nearly every way—both use the same textbook, assignments, and assessments, and both have the same quality rating on RateMyProfessor.com. They were also informed that, "The only difference between the two professors is the way in which each individual structures the course." Participants were then presented with the following vignettes:

> **Mr. Jones** structures his course so that his students are exposed to information for the first time in his classroom. Although students are expected to complete reading assignments in the textbook prior to class, Mr. Jones uses lecture and in-class videos as the primary mechanisms for communicating class content. A brief comprehension quiz is given in class every week. Students receive feedback regarding their performance during the next class meeting. All assignments and projects are completed outside of the classroom, in the students' own time. *In sum, time in Mr. Jones's classroom is spent absorbing information through professor-led lecture, whereas time outside of his classroom is spent applying information through assignments and readings.*
>
> **Mr. Davis** structures his course so that his students are exposed to information for the first time before they come to the classroom. Specifically, students are expected to watch videos of short, pre-recorded lectures in their own time, which are followed by a brief online comprehension quiz. Students receive immediate feedback regarding their performance. Class time is used to discuss the pre-recorded lectures, as well as to complete group activities and hands-on projects. *In sum, time in Mr. Davis' classroom is spent applying information through student-led discussions and group projects, whereas time outside of his classroom is spent absorbing information though pre-recorded lectures.*

The vignette of Mr. Jones was designed to depict a traditional classroom environment, whereas the vignette of Mr. Davis was designed to depict a flipped classroom environment in which out-of-class video lectures were the primary means of content dissemination. The labels "flipped" and "traditional" were not presented to the participants, however, given such labels might bias students in favor of or against on of the teachers. After reading both vignettes, participants were asked to evaluate the personal and pedagogical characteristics of each instructor through seven items rated on a 1-5 Likert scale, with lower scores indicating less of the relevant construct (see Appendix A). Participants were also asked which instructor they would select for the course (Mr. Jones, Mr. Davis, or No Preference), and they were asked to respond to the following open-ended item: "Please explain why you chose the professor that you did. (If you have no preference, please explain this as well)."

Results

Quantitative analyses. Eighty-four participants (50.6%) preferred the traditional classroom environment, while 60 participants (36.1%) preferred the flipped classroom environment. Fifteen students (9%) indicated "No Preference." Class preference was not qualified by participant gender (χ^2 (2) = 1.769, p = .413) or participant year in school (χ^2 (2) = 4.318, p = .634).

Repeated measures t-tests were used to explore participant views of personal and pedagogical characteristics of the hypothetical instructors (see Table 1). For the 50.6% of participants who preferred the traditional environment, the traditional instructor was rated more positively than the flipped instructor in a variety of areas. Specifically, among those with a traditional classroom preference, the traditional professor and his class were viewed as more interesting and more useful than the flipped class. These participants also believed that the traditional class would lead to higher student attentiveness, better grades, and more significant learning. Additionally, although these students did not rate the traditional professor as more fun than the flipped professor, they did rate him as more approachable.

For the 36.1% of participants who preferred the flipped classroom structure, ratings of the flipped instructor were high (see Table 1). Specifically, the flipped professor was rated as more interesting, more fun, more useful, and more approachable than the traditional professor. Also, although these participants expected that they would learn more and would be more attentive in the flipped class, they did not expect that they would make a better grade when compared to the traditional class.

Qualitative analyses. Utilizing open coding procedures, a thematic analysis of the participants' responses to the open-ended statement, "Please explain

Table 1
Study 1: Differences in Ratings of Instructor Characteristics, by Classroom Preference

	Traditional Preference			Flipped Preference		
Ratings of Instructor	Traditional Instructor	Flipped* Instructor	*T-test*	Traditional Instructor	Flipped* Instructor	*T-test*
Interesting	4.18 (.70)	3.33 (1.03)	$t(83) = 5.861$, $p < .001$	3.10 (1.02)	4.40 (.67)	$t(59) = -9.078$, $p < .001$
Fun	3.51 (.75)	3.19 (1.00)	$t(83) = 2.301$, $p = .024$	2.67 (.90)	4.17 (.67)	$t(59) = -9.356$, $p < .001$
Useful	4.21 (.66)	3.35 (1.01)	$t(83) = 6.232$, $p < .001$	3.67 (.93)	4.32 (.60)	$t(59) = -4.634$, $p < .001$
Quality of Learning	4.31 (.71)	3.01 (1.05)	$t(83) = 9.747$, $p < .001$	3.33 (1.05)	4.20 (.78)	$t(59) = -4.651$, $p < .001$
Grade	4.41 (.67)	4.08 (.84)	$t(79) = 2.965$, $p = .004$	4.29 (.97)	4.24 (.82)	$t(59) = .339$, $p = .736$
Students Off-Task in Class	2.88 (1.05)	3.62 (1.13)	$t(83) = -4.780$, $p < .001$	3.63 (1.09)	2.77 (1.14)	$t(59) = 3.833$, $p < .001$
Approachable	4.01 (.74)	3.55 (.92)	$t(83) = 3.380$, $p < .001$	3.25 (1.00)	4.40 (.56)	$t(59) = -7.765$, $p < .001$

***** In Study 1, the flipped instructor was characterized as providing only video lectures for out-of-class work.
Note: Gray shading indicates a significant mean difference in favor of the shaded instructor for that item ($a = .01$).

why you chose the professor that you did," was conducted. Among those students preferring the traditional instructor, the most frequently mentioned reason for that preference was a belief that they would learn more in that setting (33.3% of the 84 participants preferring the traditional class mentioned this).

For example, one response read, "I think that [the traditional instructor] is all about learning the material that you need and understanding it. In the long run, that's all that matters." Additionally, 28.6% stated that they prefer for their learning to happen in the context of in-person lectures. One student commented, "From personal experience, I do much better learning lectures in the classroom rather than outside the classroom. I am more prone to pay attention in a classroom setting and therefore will absorb the information better." Other popular rationales for the traditional class choice included a preference for teacher-directed (as opposed to student-directed) learning (16.7%), as well as perceiving less student effort required in the traditional course (15.5%). For instance, one participant explained, "I would rather have material explained to me instead of learning it on my own, and I am not always motivated to learn on my own."

As was the case for students preferring the traditional instructor, thematic analysis indicated that 33.3% of those who selected the flipped instructor believed that they would learn more in that classroom environment. For example, one student stated, "I would chose [the flipped instructor] as my professor because I think it would help me learn more about the subject unlike [the traditional] class where I would just memorize the information." 23.3% justified their choice by expressing a dislike of the in-class lecture format, and many of the participants mentioned a preference for various aspects of active learning, including a preference for classroom discussion (21.7%) and a preference for hands-on activities (25%). These themes are reflected in the following response:

> I chose [the flipped instructor] because I am a hands on learner. I tend to learn better when I can interact with others and walk through what we are learning. I think having classes based on discussions and activities would boost my confidence to speak up to my classmates and teacher but also to learn by discussing the material daily.

Lastly, many participants assessed that the flipped class would be more fun or entertaining (21.7%), including the student who stated the following:

> I would pick [the flipped instructor] because he seems to make sure that his class is exciting and hands-on. If I was in the other class . . . I would be tempted to use my phone or zone out, or even not come to class.

Study 2

Method

Participants. Three hundred twelve undergraduate psychology students (154 females; 158 males) participated in this study. The sample was comprised of 138 freshmen, 88 sophomores, 43 juniors, and 43 seniors. Participants were solicited via the same method utilized in Study 1, and potential participants were excluded if they had already participated in the first study.

Materials and procedure. Identical procedures and materials were utilized here as in Study 1, with one change to the presented vignettes. For the flipped instructor, after the opening sentence of the vignette, participants were notified that, "this exposure [to class content] is aided by the use of many different mediums, such as online instructional lectures, demonstrational videos, documentaries, research exploration, and traditional text. For each topic, students have access to these different mediums and can choose those they feel

Table 2
Study 2: Differences in Ratings of Instructor Characteristics, by Classroom Preference

	Traditional Preference			Flipped Preference		
Ratings of Instructor	Traditional Instructor	Flipped* Instructor	*T-test*	Traditional Instructor	Flipped* Instructor	*T-test*
Interesting	4.03 (.74)	3.02 (.93)	$t(100) = 4.189$, $p < .001$	3.48 (1.02)	4.26 (.64)	$t(175) = -15.57$, $p < .001$
Fun	3.42 (.83)	2.41 (.80)	$t(100) = 1.892$, $p = .061$	3.17 (1.02)	4.03 (.70)	$t(175) = -20.235$, $p < .001$
Useful	4.09 (.68)	3.61 (.73)	$t(100) = 6.020$, $p < .001$	3.50 (.84)	4.17 (.61)	$t(175) = -9.274$, $p < .001$
Quality of Learning	4.14 (.72)	3.34 (.85)	$t(100) = 8.656$, $p < .001$	3.11 (.95)	4.23 (.64)	$t(175) = -10.793$, $p < .001$
Grade	4.55 (.56)	3.97 (.71)	$t(100) = 6.464$, $p < .001$	4.06 (.84)	4.57 (.59)	$t(175) = -10.957$, $p < .001$
Students Off-Task in Class	2.96 (1.02)	3.62 (1.05)	$t(100) = -4.103$, $p < .001$	3.49 (1.08)	2.72 (1.05)	$t(175) = 8.610$, $p < .001$
Approachable	3.77 (.72)	2.97 (.85)	$t(100) = -.895$, $p < .378$	3.94 (.68)	4.24 (.76)	$t(175) = -9.479$, $p < .001$

* In Study 2, the flipped instructor was characterized as providing a menu of options for out-of-class work.
Note: Gray shading indicates a significant mean difference in favor of the shaded instructor for that item ($a = .01$).

aid their learning process best." By making this alteration, we provided the participants with an expanded conceptualization of the flipped classroom that is not necessarily tied to the use of pre-recorded instructor lectures (Hussey et al., 2015; Kim et al., 2014).

Results

Quantitative analyses. One hundred one participants (32.4%) preferred the traditional classroom structure, while 176 participants (56.4%) preferred the flipped classroom structure. Thirty-five students (11.2%) indicated "No Preference." Class preference was not qualified by participant gender (χ^2 (2) = .248, p = .884) or participant year in school (χ^2 (2) = 6.636, $p = .356$).

As was the case in Study 1, instructor preference was partially explained by participant ratings of personal and pedagogical characteristics. T-tests related to these characteristics are presented in Table 2. Once again, those who preferred the traditional instructor rated him as more interesting and more useful, but not as more fun than the flipped instructor. Participants also expected that they would pay more attention, would learn more, and would receive a better grade in the traditional class. As a point of departure from Study 1, students who selected the traditional instructor did not rate that instructor as more approachable than the flipped instructor in this study.

Examination of instructor ratings for those students who preferred the flipped classroom environment revealed uniformly positive comparisons for the flipped instructor (see Table 2). These participants rated the flipped professor as more interesting, fun, useful, and approachable than the traditional professor. Also, these participants expected that they would be more attentive, they would make better grades, and they would ultimately learn more in the flipped classroom.

Qualitative analyses. A thematic analysis of the participants' responses to the open-ended question requesting justification of their instructor preference revealed interesting trends. In the first study, the most commonly cited justification for a traditional classroom preference was the assessment that the students would learn more in that environment. Although 17.8% of Study 2 participants did comment that they felt the traditional classroom would yield greater learning, 30.7% of the participants indicated a strong preference to learn via lecture. Students preferring the traditional structure also mentioned a preference for lecture to occur in-person (as opposed to via video; 13.9%), as well as the belief that learning should be teacher-directed (20.8%). A sample participant response containing many of the most prevalent themes is as follows:

> [The traditional instructor] is actually teaching the information and giving students the tools necessary to apply the knowledge to tasks. [The flipped instructor] is relying on other sources to teach his students and then helps them apply the knowledge learned from pre recorded lectures. I feel like I would personally prefer [the traditional] class because I learn better from hearing lecture in a classroom setting than by watching videos and reading

In contrast, thematic analysis of the open-ended responses for the 56.4% of the sample that preferred the flipped class indicated that many participants selected that classroom because they believed it would lead to higher quality learning (28.1%). As was the case in Study 1, many participants mentioned aspects of active learning as the reason for their choice of the flipped classroom, including a preference for discussion (16.9%), hands-on experiences (17.4%), and applied activities (16.9%). Such themes are reflected in this comment:

> With [the flipped] class I would be able to get an idea for the material before class then when in class I can focus on asking questions and applying it to make sure I really understand it. Unlike in [the traditional] class where the class time would focus

> on learning the material then leaving the classroom to do the activities and thinking of questions as you're doing the work where you don't have him available to ask.

Additionally, these participants commented that the flipped classroom instructor would likely be more fun/interesting (28.1%) and more approachable, comfortable, or helpful (16.9%) than the traditional instructor, as reflected in this comment:

> I feel as though [the flipped instructor] would seem much more approachable about learning and the classroom environment, which is very important to me. There is nothing more debilitating than a professor who is unapproachable. [The flipped instructor] also seems to cater more to students learning styles, which is important because not every student does well in learning straight from a lecture.

Discussion

General Findings

The current studies utilized quantitative and qualitative analyses to assess student perceptions of instructors associated with flipped and traditional learning environments. To answer our first research question, "If given the choice, which format would college students prefer—a flipped classroom or a traditional classroom?," we asked students to select their preferred classroom format after reading vignettes involving hypothetical course instructors. When the flipped classroom was conceptualized as involving video lectures for homework and applied activities during class time, only a third of the sample selected the flipped professor as the more desirable option. In contrast, when the homework activities were expanded to involve a menu of options (including, but not limited to video lectures), half of the respondents had a preference for the flipped classroom. This finding helps us to address research question four: "Do students prefer the flipped classroom approach when video lectures are an optional, but not required, component of pre-class preparation?" The results from Study 2 suggest that students do prefer certain presentations of the flipped classroom environment.

To answer research question two, "What assumptions do college students make about instructors, given course format?," we compared instructor ratings by student preference. In general, students ascribed more positive characteristics to the instructor and course environment that they selected as preferred. However, in both studies, although the students with a flipped preference rated the flipped instructor as the most fun, students with a traditional preference did not view the traditional instructor as more fun than the flipped instructor. Additionally, in Study 2, students with a traditional preference did not view the traditional instructor as more approachable than the flipped instructor. This suggests that, for students preferring the traditional classroom, assessments of the instructor's approachability and entertainment potential may not weigh into course preference or satisfaction to the extent that they do for students with a flipped classroom preference. This interpretation was supported via the qualitative comments the students provided regarding their preferences. For example, one student noted, "I would prefer [the traditional instructor] because he has a traditional sense of teaching and wants students to understand rather than have fun in class." At least for this student, learning and fun are at cross-purposes.

To answer our third research question, "What drives student preferences in course choice?," we asked students to explain why they preferred the course that they did. An analysis of themes indicated that the most common explanation provided, across studies and preferences, was that their selected instructor would help them to "learn more." Despite this commonality, analysis of the second and third most common explanations by preference indicates a clear difference in what "learn more" means to different students. For example, students preferring the traditional format exhibited a strong preference to "learn through lecture" through teacher-directed instruction. As many of the comments indicated, students who prefer traditional classrooms view learning as the absorption of content from an expert. One student noted, "I think most people have learned the way that [the traditional instructor] teaches and we are used to that. If we were in [the flipped class], that could easily be an online class, and why do you need a professor if you're learning outside of the classroom?" A second student noted, "If I can learn the material on my own, there is no need to pay a professor to give me assignments or for me to go to class."

In contrast, across both studies, students with a flipped classroom preference felt that the flipped class would afford greater opportunities for active, hands-on learning: something that many students viewed as essential to a strong learning environment. One student noted, "While [the flipped] class might take more work, I feel like it would be more engaging and not as boring as [the traditional] class. I feel like I would actually learn something and learn more effectively this way." These students also expressed disdain for utilizing class time for lecture and felt that classrooms should be student-centered. A student reflected on the differences between the instructors in this way:

> Lecture classes are often dry and endless and quite frankly no one knows if they've even learned

> anything until they sit down and try to apply it. I take great notes in my chemistry class but when I sit down to do problems is when I actually know what I understand and don't understand. A class where you learn how to apply the information is a class where you'll actually be forced to show that you understand versus what you can memorize and spit back up for a test.

In contrast to students preferring the traditional classroom environment, no student preferring the flipped format mentioned "less required effort" as an explanation for his or her preference.

Taken together, our results replicate many of the findings currently presented in the literature. On the one hand, there is evidence that students do prefer some presentations of the flipped classroom format (e.g., Davies, Dean, and Ball, 2013; Gilboy et al., 2014). However, in other situations, a traditional classroom environment is preferred (e.g., Missildine et al., 2013; Strayer, 2012). Even in cases where the majority of the sample prefers the flipped classroom, a vocal anti-flipping minority usually exists (Findlay-Mombourquete, 2014; O'Flaherty & Phillips, 2015). Sometimes, the complaints of this minority concern perceptions that flipped classrooms require excessive effort (Ferreri & O'Connor, 2013). At other times they seem to represent misunderstandings regarding the nature of learning (i.e., that learning is only about absorption) or the function of a university (e.g., "My problem with that is I am not paying [the university] to teach myself . . ." Wilson, 2013, p.6). Although these studies do not conclusively resolve any of the current debates regarding the flipped classroom, they do provide provocative results that are relevant, both to practitioners considering the application of this method to their own classrooms and to scholars interested in studying the utility of the flipped approach.

Limitations

The most obvious limitation of this study is that participants were asked to share their opinions regarding a hypothetical situation: none of the students actually took a flipped class as a condition of participation. The participants also constitute a volunteer sample, as research participation was one of several options presented to fulfill course requirements: it is possible that the students who selected research participation systematically differ in some way from students who elected to analyze research articles to fulfill requirements, for example. It also bears noting that the sample contained more females than males and was predominantly white, which limits generalizability to more diverse samples. Additionally, although all participants were drawn from the same population, different samples of students participated in each of the two studies, which could have biased our results. Nevertheless, our results parallel those of studies that did include actual manipulations of course format (e.g., Gilboy et al., 2015; Lage, Platt, & Treglia, 2000), which lends legitimacy to the vignette approach for the assessment of attitudes regarding flipped classrooms.

An additional limitation concerns the measure used to assess the personal and pedagogical characteristics of the hypothetical instructors (see Appendix A). A single item was used to assess each relevant construct, which greatly constrains the reliability of the variables of interest. As such, future explorations might wish to utilize validated measures of teacher qualities, such as the Teacher Behavior Checklist (Keeley, Smith, & Buskist, 2006).

A final limitation concerns the participants' potential lack of familiarity with a flipped classroom course design. Participants were not presented with the labels "traditional" or "flipped," and in some of the open-ended responses, a few students provided comments such as, "I have never had a class like [the flipped class] before." Equivalent statements were not made in the case of the traditional classroom vignette. Therefore, students may have been better able to predict their attitudes regarding the traditional class than the flipped class. As such, future studies utilizing manipulations of this variety should consider assessing student familiarity with various course designs as a potential covariate.

Implications

Despite limitations, the results of these studies have interesting implications for instructors considering implementing the flipped classroom. First, the most obvious implication of our work concerns the use of video lectures as the primary method of content dissemination in a flipped course. When presented with the opportunity to take a class that involved out-of-class video lectures, only a third of the sample rated the flipped environment as preferred to the traditional class environment. However, after simply adding a menu of options for the purposes of pre-class content absorption (which included, but was not limited, to video lectures), over half of the sample selected the flipped class as the preferred option. These results make sense in the context of Self-Determination Theory, which postulates that the provision of choice leads to increases in student agency, such that students are more likely to invest the effort and engagement necessary to succeed (Ryan & Deci, 2000). Perhaps the participants in the current studies recognized a potential for agency in the flipped classroom with the pre-class menu that was not present in the flipped classroom with video lectures alone.

Our findings also help to contextualize common criticisms of the traditional classroom environment. For example, some have argued that the problem with

lecture-focused classes is not the presence of the lecture in the course, but the timing of that lecture (e.g., Foertsch, Moses, Strikwerda, & Litzkow, 2002). Others have postulated that students dislike traditional classes because they are unsatisfied with the absorption of content through at-home texts (e.g., Peterson, 2016). However, the current findings would call both interpretations into question. Perhaps the problem with both the traditional classroom and the video-focused, flipped classroom is not the presence or absence of textbooks or lectures, but the expectation that today's diverse student population should be successful when asked to absorb or apply content in a single way. Given the wide range of learning strengths and weaknesses present in our classrooms, it is not surprising to discover that a one-size-fits-all approach might be ineffective. Therefore, instructors in flipped classrooms might consider adding choices, both in terms of pre-class and in-class activities, for the purpose of maximizing student engagement in their courses.

An additional implication of our findings concerns the assumptions that students bring into the classroom. Although the hypothetical instructors in these studies were equated in every way except course design, students made many assumptions about their personal characteristics. Participants made these unwarranted assumptions, despite constant reminders throughout the survey that, "The only difference between the two professors is the way in which each individual structures the course." Interestingly, these assumptions did not favor one instructor over the other. That is, if a student rated a given instructor as preferred, regardless of whether the instructor was utilizing a traditional or flipped design, that student was more likely to assume that the instructor was helpful, approachable, or "really cares about learning." Students also made judgments in their open-ended responses about the relative levels of competition and collaboration in the classrooms, the rigor of the grading, and the academic press of the courses, despite receiving no information regarding these constructs. At times, the assumptions made by participants were quite surprising and in contrast with expectations, such as the student who remarked, "Professors who try to make students learn on their own outside of class make me feel like they really don't care about their students. They try to use group projects as a way to get out of actually teaching." In short, students make many unwarranted assumptions regarding instructor and course quality on the basis of relatively small amounts of information, assumptions that they may carry with them into our classrooms that may interfere with the potential for learning.

A final implication of the current work concerns the finding across both studies and class preferences that participants believed they would learn more in their preferred class. In fact, the most common theme from responses to the open-ended question, "Why did you select the instructor that you did?" was that participants felt they would learn more in the preferred classroom environment. This begs the question, however: what do students mean when they say, "learn more?" One interpretation is that students are accurate assessors of their individual learning needs. Perhaps students who prefer a traditional classroom environment recognize that they have the exemplary executive functioning, attention, working memory, and organization skills necessary to absorb relevant content from an in-class lecture and that they are effective at elaborating on, and applying, this absorbed content in their own time. Although academic success is positively coordinated with metacognitive awareness, college students, in general, are largely ineffective when it comes to accurately assessing personal learning needs (Young & Fry, 2012).

A contrasting interpretation is that diverse definitions of the construct of *learning* exist among the students we teach (Entwisle, McCune, & Hounsell, 2002). As was evident in the open-ended responses, some students equate learning with success on course exams. For example, consider the student who remarked, "I get the information. I study the information. I take a test. Seems simple." Given that many of today's college students experienced a public K-12 learning environment characterized by high stakes testing and accountability programs, it should not be surprising that many students equate learning with reproduction of class content on standardized tests. In contrast, other students view hands-on, application-focused activities as the gateway to true learning. Given broad support for the efficacy of active learning strategies in encouraging the long-term retention and application of class content (see Prince, 2004, for a review), it seems that this second operationalization of learning is the one we should promote in our classes. We must remember, however, that between a third and a half of our students do not interpret the construct of learning in this way. Therefore, if our true aim is to improve learning via the application of principles from the flipped classroom, we must be prepared to educate our students about this second interpretation of the construct. Although the inaccurate assumptions students bring to our classrooms are rarely their fault, they are nonetheless present and serve as barriers to the learning process. Therefore, if we design our flipped classrooms to focus on providing varied options for the out-of-class absorption of content and for the in-class application of such content, it is possible that we could successfully scaffold our students towards embracing a deeper conceptualization of the construct of learning.

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Appendix A
Personal and Pedagogical Characteristics of the Instructors

1. How interesting do you think this class would be?
2. How fun do you think this class would be?
3. How useful do you think the material/skills you would learn in this class are?
4. How well do you think you would learn the material in this class?
5. In terms of a grade, how well do you think you would do in this class?
6. How likely would you be to engage in non-academic activities during class time?
7. How approachable do you think this professor is?