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WTF (What the Flip)? Preliminary Results of a Flipped-Hybrid Classroom Model on Student Success

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For at least the last decade, universities and colleges across the nation have been seeking ways to improve the student learning experience. Specifically, educational scholars have been addressing problems of low retention, progression, and graduation rates (RPG). Within this realm, literature focuses on improving student study skills, improving institutional resources to identify and help improve at-risk students, and improving student engagement. The key seems to be that the more engaged a student is, the better that student will perform. The purposes of this article are to investigate students' engagement, satisfaction, and performance in a "Flipped-Hybrid classroom." Specifically, this article addresses the question: Does the flipped classroom experience improve student engagement, satisfaction, and performance? We expect our preliminary results from a pilot study to find that students will be more engaged, that there will be fewer withdrawals and D's/F's, and that end-of-course A/B rates will be higher than non-flipped control classes.

The scholarship of teaching and learning (SOTL) is at its apex in producing both quality and quantity of manuscripts. Within this literature, a

plethora of scholarship focuses on student persistence and institutional retention rates (Gansemer-Topf 2013; Seidman 2012); student satisfaction (Holinka 2015; Johnson, Cascio, and Massiah 2014); and student success and performance (Roggow 2014; Xu and Jaggars 2014). These topics all fall generally within what seems to be the most important topic for universities, administrators, professors, and students: student engagement. Engagement literature is varied and seemingly exhaustive, spanning myriad disciplines and subfields, focusing on differing conceptualizations of engagement (Korobova and Starobin 2015); different measurements of student engagement (Goldspink and Foster 2013; Handelsman, Briggs, Sullivan, and Towler 2005; Lane and Harris 2015); and different classroom pedagogies aimed at improving student engagement (Abreu and Knouse 2014; Barber, King, and Buchanan 2015).

The general tendency of these results seems to follow Ahlfeldt, Mehta, and Sellnow's (2005) findings that "This study demonstrates the pattern of higher engagement occurring more frequently in upper level, smaller classes." But the authors also contend that "instructors should be engaging students at high levels in all class sizes and class levels" (2005, 18). Additionally, Handelsman, Briggs, Sullivan, and Towler (2005, 184) note, "We found general agreement that engaged students are good learners and that effective teaching stimulates and sustains student engagement." Thus, it can be asserted that engaging the student works as a successful pedagogy to increase student success. This begs the question, however: how *best* to engage the student? The article aims to investigate the relationship between student engagement and the flipped-hybrid pedagogy within an introductory American government classroom.

Specifically, this article addresses the question, does a flipped-hybrid classroom model improve student engagement, satisfaction, and performance? We expect to find that this model does indeed improve student satisfaction and performance by increasing the level of student engagement. We also expect a high correlation between the flipped-hybrid model and an increase in student satisfaction and student engagement, measured by a decrease in D's, F's, and student withdrawals (DFW) rates and an increase in student performance measured by end-of-course grades (A's and B's particularly, or AB rates). Last, we expect the findings to show that students in this pedagogical environment improve their general knowledge content at a level higher than students taking the same course, but with a traditional lecture format.

Essentially, we contend that the flipped-hybrid model engages students far better than other classroom techniques and argue that to increase student persistence rates, end-of-course grades, and general content knowledge, and to decrease DFW rates, this pedagogy should be more widely implemented, especially in required core classes. It is also suggested that this method be applied more generally to political science as a field. In an era defined by

institutional pressures to create better environments for student success, political science courses at lower and upper levels can benefit from innovative pedagogy. Thus, this article's findings ought to be applied beyond the test class, Introduction to American Government, to all classes in political science. It is relevant not just to professors of introductory political science classes, but to the teaching professor more generally, and thus, we contend this method should be applied discipline wide.

Our discussion has five main sections. The first section contains a brief review of the literature pertinent to the flipped-hybrid classroom pedagogy. The second section discusses the methodology and research design, and the pilot course design. The third delivers the preliminary results of the pilot course, and the fourth discusses the results. The last section provides generalized and relevant conclusions and suggests directions for future research.

The Flipped-Hybrid Classroom Model

Broadly across the university environment, in essentially every discipline and major, flipping has become a major teaching innovation. Any basic scholarly search returns results demonstrating generally positive reports from the flipped model, usually utilized through hybrid technology—that is, integrating outside of classroom activities through technological foundations such as university learning management systems. The specific tools implemented range anywhere from online discussion posts (Murphy and Fortner 2014; Williams and Lahman 2011); to video lectures students watch before class (D Souza and Rodrigues 2015)—typically accompanied with the in-class utilization of higher-order thinking techniques processed through Socratic dialogue or other collaborative or learning-centered methods; to online assessment assignments and modules (Mzoughi 2015); to complete computer to user interactive interaction (Sundar, Bellur, Oh, Xu, and Jia 2014).

The flipped or "inverted" method proved successful transdisciplinary, yielding at least similar results, but usually more positive effects on student learning and engagement than traditional lecture-based classrooms, in fields including but not limited to: calculus (Alpaslan, Cavlazoglu, and Zeytuncu 2015); chemistry (Yestrebsky 2014); history (Murphree 2015); nursing (Harrington, Vanden Bosch, Schoofs, Beel-Bates, and Anderson 2015); physical therapy (Murray, McCallum, and Petrosino 2014); and programming (D Souza and Rodrigues 2015), to name a few. Even library services faculty have seen positive results from the flipped context in a continuing education program (Conte et al. 2015). Positive results were also recorded in the international arena (Danker 2015). The overall conclusion: flipping works. But, precisely what is meant by the concepts "flipping" and "hybrid," and how have they generally been utilized?

A flipped learning model can afford instructors and learners increased access to technologies as well as differentiation and personalized learning. The flipped model focuses on assigning the major information context to the student to complete outside of the classroom setting. In other words, the lecture or major information for the class is completed at home. These assignments are generally meant to prepare students for a wide range of in-class techniques that engage the student more actively, therefore keeping students' interest high, which seemingly results in greater student satisfaction and thus better performance. Alternatively, some assign a video lecture outside of class to view and take notes. While in the class they complete difficult assignments with the professors looming, engaging the students, allowing real-time intervention strategies for those having difficulty with the assignments. For instance, Touchton (2015) flipped an advanced statistics class by assigning the reading for homework but also requiring the students to watch mini-lectures and slideshows outside of class.

In-class activities included having the students complete what are usually homework problem sets and lab exercises. This allowed the professor to give break out mini-lectures when it was noticed that students were having difficulty with the material (Touchton 2015). Additionally, in this instance, class time was devoted to allowing students to write research papers in the classroom setting, once again allowing for ample instructor intervention strategies if some difficulties were observed (Touchton 2015). The overall results of this class are in line with the general results of flipping: flipping the statistics class resulted in higher student performance and satisfaction. Generally, flipping means that homework is completed in class, and what is considered traditional class work is completed at home: hence the name, flipping. The formal definition of flipped learning used for this paper comes from the Flipped Learning Network (2014): "a pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter."

The four pillars of F-L-I-P include *F*lexible environment, *L*earning culture, *I*ntentional content, and *P*rofessional educator (Flipped Learning Network, 2014). Specifically, a flexible environment provides students with different ways to learn content and allows for a variety of learning mechanisms. The second pillar, learning culture, is met by allowing students to engage in meaningful activities without the teacher being the primary source of information. Finally, the last pillars reference educators prioritizing concepts, curating relevant resources, and differentiating (intentional content), as well as serving as an observer, assessor, and collaborator (professional educator) (Flipped Learning Network, 2014).

Hybrid, or blended, learning involves combining face-to-face learning with online learning. The hybrid or integrated classroom focuses on putting assignments online for students to complete before or after class, therefore reinforcing information learned, or preparing students for more in-depth classroom activities. Usually, the hybrid environment is a type of flipped classroom, in which the flipped elements are integrated into an online format. Hybrid activities are generally more complex than the typical flipped assignments and are designed to further or deepen student knowledge rather than just to provide information. Hybrid elements range from discussion posts, to interfacing technology, to online simulations, to the traditional lecture capture, and to other formative assessment techniques.

Together, the flipped-hybrid model is a classroom in which students complete an assortment of assignments online preparing them for classroom activities. Since classroom preparation techniques are moved to the online format, class sessions are free to investigate issues in a more learning-centered, interactive way, usually trying to focus on higher-order learning, which is not usually possible in the traditional classroom lecture format. Classroom techniques also usually involve active learning, games, and simulations. Important conceptual knowledge is not lost during these classroom activities, because they are completed beforehand online. For instance, active learning through simulations engages the students, but as Lightcap (2009) observes, not every class or professor has three to four weeks to dedicate toward a highly engaged, interactive simulation. If that amount of time is dedicated toward learning the simulation, important traditional student learning objectives will not be met. By using a flipped-hybrid model, however, one can place all the traditional information online to be completed by the student outside of the classroom, and class time can be devoted to a month-long simulation.

In the traditional setting, students sit in class and generally listen to a lecture on the subject of the day in which they may be exposed to some technology inside the classroom such as PowerPoint or other smartboard technologies. They may have a few moments of interaction through question-and-answer sessions or other deliberative assignments. These assignments are generally short, however, and are not fully developed or utilized enough to stimulate student engagement. The focus is on the lecture, which students then memorize for assessment purposes. Student learning is passive and unengaged. As Damron and Mott (2005) write, "In the end, lecture-dominant courses … tend to curtail student opportunities to talk about, to collectively process and to apply the ideas and concepts presented to them" (370). The flipped-hybrid model inverts this method, freeing class time for simulations, deep Socratic dialogue, and other more engaging methods (some to be discussed below) on a daily basis. One can postulate that this daily interaction between the professor and students and peer-

to-peer activities typical in this pedagogy create a better learning environment than the traditional classroom settings in which these methods are implemented only on a limited basis, if at all. Again, the focus for innovation seems to be on engagement. As Ahlfeldt, Mehta, and Sellnow (2005) report, "The new paradigm is to actively engage students with the material and one another" (5). But what does this mean, and how and why is it instrumental for learning-centered approaches?

There is no lack of debate for conceptualizing student engagement and/or student engagement techniques and testing its relationship to student success. Barkley (2010, 8) states that student engagement is a product resulting from a process of interaction between motivation and active learning. In this context, motivation is a theoretical construction explaining the reasons we engage in which active learning is characterized by the mind being active, as opposed to passive as in the traditional lecture classroom. To be active, Barkley (2010, 9) suggests that students are dynamic participants in the learning process, both reflecting and monitoring their learning. Therefore, "An engaged student actively examines, questions, and relates new ideas to old, thereby achieving the kind of deep learning that lasts" (Barkley 2010, 17). For Barkley, engaging the student means that the student must be active within the classroom environment and beyond. Results from a meta-analysis of 225 studies demonstrate that this type of engaged environment proves very successful. Freeman et al. (2014) demonstrate that average examination scores improve by 6 percent in an active learning class environment, and students are 1.5 times more likely to fail in a traditional lecture setting than an active learning format. Although the meta-analysis performed herein applied only to STEM classes, one can assume that results can be more generalized from the data.

The National Survey of Student Engagement (NSSE) developed perhaps the most heavily relied-upon understanding of student engagement. Kuh (2003) argues that student engagement is a twofold approach, "the time and energy students devote to educationally sound activities inside and outside of the classroom, and the policies and practices that institutions use to induce students to take part in these activities." Kuh later refines this conceptualization: "Today engagement is the term usually used to represent constructs such as quality of effort and involvement in productive learning activities" (2009, 6). NSSE measures student engagement through five categories: student behaviors; institutional actions and requirements; reactions to college; student background information; and student learning and development (Kuh 2009).

It is outside the scope of this article to examine each of these parameters in detail, but it must be noted that each parameter is deemed essential to student engagement according to NSSE. NSSE generally looks at the institutional setting as a whole and how students "experience" college in particular. Originally, NSSE

also broke down student engagement into five distinct categories including level of academic challenge, active and collaborative learning, student-faculty interaction, enriching educational experiences, and supportive campus environment (Kuh 2009). All of these are indicators of student engagement institution-wide, are based on the broad conceptualization of student engagement mentioned above, and are expected to have an effect on student success. In fact, according to analysis from McCormick, Gonyea, and Kinzie (2013), different NSSE researchers have uncovered positive relationships between engagement and both grades and persistence from freshman to sophomore years; between engagement and grades, credit-hour accumulation, persistence, and degree attainment; and engagement and retention. These results demonstrate promising relationships between student success and engagement. However, these are all measured institution-wide, and not at the class-specific level. For this type of data, several measurements exist, including one evolving from NSSE called CLASSE.

CLASSE is a student survey that asks students to reflect on their experiences and behavior of a particular class (Ouimet 2011). Importantly, CLASSE also developed survey responses for the faculty as well, called CLASSE Faculty, as a way to assess how much faculty in each class measured valued student activities and to see how those scores aligned with student scores (Ouimet 2011). Of particular importance for this measurement was student evaluation and faculty evaluation of engagement activities. Essentially CLASSE is used as a faculty development tool, to help faculty see what students value as important, and thus, hopefully, to evolve individual classes based on these responses. As Ouimet (2011) writes, "Identifying the connections and gaps between what faculty value and what students are doing can help improve faculty members in the diagnosis of their classroom learning environment" (119). Because CLASSE is specific to faculty development, and contains more indicators than student engagement measures, it is not perfect for the present study.

A more personal and class-specific measurement, devoted to strictly assessing student engagement, is the Student Course Engagement Questionnaire (SCEQ) (Handelsman et al. 2005). That study defines engagement as "a global quality that students have in relation to elements such as level of academic challenge and supportive campus environment" (2005, 184). This mechanism measures students across four categories of student engagement, including skills engagement, emotional engagement, participation/interaction engagement, and performance engagement (2005). The study also found some correlation between engagement and course grades, though limited as the authors themselves acknowledge. Although a well-designed questionnaire, SCEQ does not take into account hybrid or online activities.

Dixson (2010) sought to resolve this deficiency in the SCEQ by developing a survey instrument for online student engagement. Rather than replacing the SCEQ, Dixson redesigns it to fit nicely within an online course environment and keeps it as the foundation, including all four elements of engagement: skills, emotional, participation/interaction, and performance, noting that, "These factors make not only intuitive sense as indications of a student's active pursuit of learning in a course, but are grounded in theories of motivation, self, and mastery/performance orientations by students" (Dixson 2010, 4). However, for the present purposes, Dixson's study takes the SCEQ too far in the opposite direction, making it only useful for online classes. Thus, there is not a survey that fits nicely with a flipped-hybrid course. This will be the work of future research. With this stated, the present paper uses Kuh's definition of engagement as the quality of effort and involvement of the student in productive learning activities (2009, 6).

Classroom Design, Research Design, and Methods

Before discussing this article's research design and methodology, it is first necessary to describe how the flipped-hybrid model was used in this particular class. The decision to try a flipped-hybrid approach grew out of two faculty development events. First, the authors' university hosted an event on faculty development, including a small grant for authors to develop methods to increase engagement, reduce DFW rates, and increase persistence and retention. It was during particular workshop sessions that the principal investigator (PI) was exposed to the positive effects of flipping courses. Additionally, and as a part of the grant from the University's Office of Faculty Development and Teaching Excellence, the PI attended the 2015 American Political Science Association's Teaching and Learning Conference held in Washington, D.C. At this conference several papers and panels discussed the positive relationships between engagement and consequential results from high rates of engagement and flipping the classroom.

During the same time, academic year 2015, the PI held a faculty fellowship through the University of Georgia's Institute of Higher Education Governor's Teaching Fellowship Program. A condition of the award required fellows to develop a project that would redesign their classroom experience. After several sessions on engagement and flipping, along with the other above-mentioned events, the decision was made to redesign an introductory American government course through the flipped-hybrid method, in order to investigate its effects on engagement, DFW rates, and student satisfaction. After receiving support from the Department of Political Science, the PI designed and piloted

the flipped-course methodology to implement during the spring 2015 semester. The results in this present study are from this redesign.

Learning from best practices in the literature, the PI decided to implement the flipped-hybrid design in several ways. First, all course lectures were recorded via video, but rather than recording an actual lecture, the professor recorded voice-over PowerPoint presentations (PPP). The decision was made to keep these around the 20-minute mark in order to keep the students' attention. Learning from faculty development workshops that low-impact assessments helped keep students engaged as well as providing formative assessments for targeting at-risk students thereby allowing for timely intervention, the PI decided to create very short, multiple-choice online assessments of the PPP. There would be one assessment per PowerPoint lecture totaling about 20 for the entire semester, which would account for 10 percent of the final grade, thus achieving the low-impact conceptual marker. The PI additionally provided the written notes upon which the lectures were based, though they were not complete (for example, specific examples provided in the lectures were not recorded in the notes, therefore giving reasons for students to watch the presentations rather than just reading the notes).

Additionally, students were required to discuss three topics via the course's online learning management system, Desire2Learn. The three topics were the lectures, current events, and the readings. These posts counted toward 5 percent of the final course grade, again being low impact, and were graded on the number of quality posts. The rubric for number of posts required per letter grade was provided to the students in the syllabus so they would know beforehand how much participation was required for them to receive an A on this portion of the class. It also softly required engagement. The readings consisted of typically fifteen pages per class night of Alexis de Tocqueville's *Democracy in America*, which recent research has demonstrated to achieve higher student success and satisfaction in introductory American government classes than using traditional textbooks or other sources (Albert and Ginn 2014). The students were quizzed in class on the readings, usually once per week. At the beginning of the semester the quizzes focused on details, main ideas of the pages for that day, and main topics. Later in the semester, the quizzes focused on higher-order thinking through critical analysis of the readings and through trying to make Tocqueville relevant in the current political setting. These quizzes accounted for another 10 percent of the final grade, once again being low impact.

Class time was then spent mainly in Socratic dialogue, encouraging debate and understanding from the lectures and the readings, though more time was devoted to the readings than lecture, believing that so doing would help develop more higher-order thinking. In order to force students to be engaged and to bring technology into the classroom, which has been demonstrated to help in-class

engagement (Heiberger and Junco 2011), the PI used an iPhone application (*ILeap Pick-a-Student*) to randomly call on students to answer professor-guided discussion questions on the lectures and readings. Once the original respondent provided an answer (or could not provide an answer), the PI allowed random students to participate. In so doing, the PI forced students that may not otherwise pay attention in class or participate to be on their toes constantly anticipating the random student generator. It also, however, allowed the more ambitious students ample time to express themselves.

Additionally, the PI tried to incorporate real-time polling in the classroom, which has also been demonstrated to increase student engagement (Burkhardt and Cohen 2012). To save money and to make it more interactive, the professor utilized another phone application, *Polleverywhere*. This application allows the PI to create several types of polls, including open-ended questions, multiple-choice, and true-false, and is projected onto the screen for students to view. They then vote either through their phones or other online platforms such as laptop or touchpad, and can respond via the website itself linked by the professor, via text or Twitter account, which has also been demonstrated in the literature to promote student engagement and motivation (Lederer 2012; Mazer, Murphy, and Simonds 2009). It must be noted that these in-class techniques would not be possible in the Socratic fashion without teaching through a flipped-hybrid method. It is precisely this method that allowed different pedagogical practices to occur during class time to also focus on engagement. Thus, the class focused on increasing engagement online and during actual face-to-face time. In-class participation counted for an additional 5 percent of the final grade, again being low impact to achieve maximum engagement and utility. The remaining course grades were divided between four in-class exams in short-answer or essay format, which cover the readings and lecture information as well as some current events.

All four pillars of F-L-I-P are addressed through the model described above. The PI was flexible with providing a variety of ways for students to demonstrate mastery. Giving frequent feedback and engaging in the Socratic dialogues in which the students are central to the learning created the learning culture, pillar two. Selections of videos addressing important content and allowing students to access information on their own are the tenets of intentional content. Furthermore, the PI was available for students and used formative assessments during class time to fulfill the role of professional educator (Flipped Learning Network, 2014). If it proves successful, the above course template should be adapted into more courses, especially at the upper levels, in order to improve student engagement throughout the major. Further, assessments should be made in each political science course to determine whether this above classroom pedagogy works, how, and why it may or may not each setting.

Research Design and Methods

This paper's research question is, "does a flipped-hybrid classroom model improve student engagement, satisfaction and performance?" To investigate this question, we posed three hypotheses.

> **Hypothesis 1:** The flipped-hybrid pedagogical model increases student satisfaction of course material more than traditional lecture-based classes.
>
> **Hypothesis 2:** The flipped-hybrid pedagogical model increases student performance in the course more than traditional lecture-based classes.
>
> **Hypothesis 3:** The flipped-hybrid pedagogical model increases student engagement more than traditional lecture-based classes.

To test these hypotheses, the authors needed to test the experimental course described above (run in spring 2015) against the same professor's classes run in previous years not using the flipped-hybrid model. The investigators also needed to test the hybrid course against the rest of the department's introductory American government classes run in Spring 2015 and against the entire department's introductory American government classes in the previous two years. To test the first hypothesis, we used DFW rates as a measure of student satisfaction. Certainly course withdrawals have a direct relationship with student satisfaction. Therefore, a decrease in course W's would demonstrate a higher rate of student satisfaction. Additionally, it has been demonstrated that a final grade of a D or F by a student is partly correlated to dissatisfaction or lack of motivation by the student for the course. Therefore, it can be surmised that a decrease in the number of D's and F's in a course corresponds to an increase in student satisfaction. We expected to find that the flipped-hybrid model increased student satisfaction of the experimental course over all control courses, including department-wide and professor-specific controls.

To test the second hypothesis, the authors compared end-of-course grades of either an A or B in the experimental course to the same controls described above. It is expected that the flipped-hybrid model will result in an increase in AB rates when compared to all control courses, including department-wide and professor-specific courses, thus demonstrating that the experimental course improves student performance when compared to traditional lecture-based classes. For the third hypothesis, the authors expected that the flipped-hybrid model will increase student engagement more than the control courses. The authors wanted to test this by using the end-of-class evaluation instruments with embedded engagement questions included. However, the PI's college moved to

an online evaluation method for which spring 2015 was the pilot semester. The college could not get enough students to respond to the evaluations to run any tests that would have statistical significance; in addition, all results for the additional engagement questions that were added to the traditional student course evaluations were lost by the online management system. Therefore, results for Hypothesis 3 could not be obtained, and discussion for this instance is omitted for the remainder of this article and will be the focus of future research. However, although the added questions for student engagement were lost and there were not enough respondents to the survey to test at any level of significance, the end-of-course evaluations still provide useful qualitative data that can help better understand the relationship of the flipped-hybrid pedagogy and the other two hypotheses tested.

Quantitative and Qualitative Results and Analysis

Grade distribution data from the sections of Introduction to American Government from the fall 2013, fall 2014, and spring 2015 semesters was obtained from the university's database. The fall 2013 and fall 2014 data is control data in the sense that all sections of the course, including those taught by the PI, were taught using a traditional lecture format. In the spring 2015 semester, the course was taught by the PI using the flipped-hybrid model. Hypothesis tests comparing two sample proportions were performed comparing the PI's DFW and AB rates to the corresponding rates from the rest of the Introduction to American Government instructors from that department for each semester's data. Two proportion hypothesis tests were also done comparing the PI's DFW and AB rates from the semester in which the PI used a traditional approach to the rates from the semester the PI used the flipped-hybrid model. In all tests, a two-sided alternative hypothesis was used.

One can see from the data in Table 1 that the DFW rates for the PI's sections of Introduction to American Government are higher than the rates for the other instructors in the department. However, none of the differences are great enough to be considered statistically significant at a 5 percent significance level. In particular, the DFW rate from the flipped-hybrid sections was not less than that of the rate for other sections taught using the traditional lecture approach.

As shown in Table 2, the PI's DFW rate from spring 2015 when the PI used the flipped-hybrid model was lower than the fall 2013 rate but greater than the fall 2014 rate. However, once again the differences are not great enough to be considered statistically significant.

Table 3 provides a summary of withdrawal rates from the semesters under consideration. There is considerable fluctuation in these withdrawal rates. The rate for the flipped-hybrid sections in spring 2015 is lower than that of the PI's

Table 1: DFW Rate Comparison: PI versus Other American Government Instructors

		# of Students	# of DFWs	Rates	Test results
Fall 2013	PI	61	15	24.6%	z = 1.47 p = 0.141
	Rest of Dept.	507	86	17.0%	
Fall 2014	PI	70	13	18.6%	z = 1.38 p = 0.166
	Rest of Dept.	555	70	12.6%	
Spring 2015	PI-Experiment	51	12	23.5%	z = 1.81 p = 0.070
	Rest of Dept.	306	42	13.7%	

Table 2: PI DFW Rate Comparison: Flipped-Hybrid vs. Traditional

Semesters Compared	Flipped DFW Rate	Traditional DFW Rate	Test Results
Spring 2015 vs. Fall 2013	23.5%	24.6%	z = –0.13 p = 0.896
Spring 2015 vs. Fall 2014	23.5%	18.6%	z = 0.67 p = 0.506

Table 3: Withdrawal Rates

		PI	Rest of Department
Fall 2013	# of withdrawals	1	21
	Percentage	1.6%	4.1%
Fall 2014	# of withdrawals	10	12
	Percentage	14.3%	2.2%
Spring 2015	# of withdrawals	5	21
	Percentage	9.8%	6.9%

Table 4: AB Rate Comparison:
PI vs. Other American Government Instructors

		# of Students	# of ABs	Rates	Test Results
Fall 2013	PI	61	37	60.7%	z = −0.56
	Rest of Dept.	507	326	64.3%	p = 0.576
Fall 2014	PI	70	50	71.4%	z = 0.17
	Rest of Dept.	555	391	70.5%	p = 0.866
Spring 2015	PI-Experiment	51	32	62.8%	z = −1.08
	Rest of Dept.	306	215	70.3%	p = 0.282

sections in fall 2014 when the traditional lecture format was used. However, it is much higher than fall 2013 when there was only one withdrawal. The withdrawal rate for the flipped-hybrid sections is higher than the rate for other sections taught that semester, but the difference is not great enough to be considered significant.

Looking at AB rates (Table 4), one sees they range from 60.7 to 71.4 percent. When the PI taught the course using a traditional lecture format, in fall 2013, the AB rate was lower than that of the rest of the department, and in fall 2014, the rate was higher than the rest of the department. In neither case was the difference statistically significant, as indicated by the relatively high p-values of 0.576 and 0.886. When the PI used the flipped-hybrid method, the AB rate was lower than that of the rest of the department, but not enough to be statistically significant. This analysis suggests that at this point the PI's AB rates are similar to those of the rest of the department regardless of the teaching method employed.

When we compare the AB rates of the PI's flipped-hybrid sections to the rates from PI's traditional sections (Table 5), no clear differences emerge. The AB rate for the flipped-hybrid sections taught in spring 2015 is higher than the lecture format courses the PI taught in fall 2013 but lower than those taught in fall 2014. When compared statistically, the differences do not come out as statistically significant.

Qualitative Analysis of Results

Qualitative analysis of coding and categorization of student evaluation data provided a deeper understanding of students' levels of satisfaction with the flipped-

Table 5: PI AB Rate Comparison: Flipped-Hybrid vs. Traditional

Semesters Compared	Flipped AB Rate	Traditional AB Rate	Test Results
Spring 2015 vs. Fall 2013	62.8%	60.7%	z = 0.23 p = 0.821
Spring 2015 vs. Fall 2014	62.8%	71.4%	z = −1.01 p = 0.313

hybrid model in the spring 2015 semester. Initially, Strauss and Corbin's (1990) open coding system was used to write down any ideas that surfaced while reading the open-ended responses. From there, codes were applied that resulted in categories, then themes. We used a combination of content and thematic analysis (Ezzy 2002) because at times the categories were predetermined (i.e., satisfaction), yet other categories emerged from the data.

When students were asked if they would recommend the PI to other students and why, the results were unanimously positive. Specifically, of the 31 respondents, 17 said that the course was challenging, 7 wrote that the PI was "passionate," and 6 said the professor "cares." These characteristics overwhelmingly indicate student satisfaction with the course. Other adjectives used to justify why students would recommend the PI to others is that he made the class "enjoyable" and requires "critical and analytical thinking," as well as "interesting," "relevant," and "fun." Additionally, when students were asked which aspect of the course they liked the most, the most popular response (with 15 out of 31) was the instructor's flipped teaching style. An additional 10 students cited the online discussions, which are an aspect of the flipped-hybrid model; therefore, in all, the vast majority (25 of 31) of student respondents liked the flipped-hybrid model in this course. The open-ended questions showed strong positive reactions to both the flipped style as well as the discussions. To quote one student evaluation response, "I really enjoyed the flipped classroom teaching method. It was really effective in opening up time in class to clarify concepts." Similarly, a student wrote, "I liked the flipped classroom he had. It always made class interesting," and another commented by writing, "I like how the lectures were online and the students discuss what we read in the classroom to get a good understanding."

Although the current investigators understand that student evaluation comments are not solely sufficient to determine the success of a course, they do help add useful evidence that illustrate student satisfaction with the overall

course design. Thus, while the quantitative data yields no statistically significant results to support the hypotheses, the qualitative results demonstrate some support for Hypothesis 1, that the flipped-hybrid model increases student satisfaction. This satisfaction is clear in the words of this student who wrote, "Discussions were very interesting and his teaching style, which is the flipped classroom style, is very effective and helps the student be more involved and therefore more able to grasp and understand all concepts."

Discussion

Based upon the statistical tests above, one can see that in both testable hypotheses, 1 and 2, the results did not support the expected results. For Hypothesis 1, there were no statistically significant results, but of the results not significant, it was demonstrated that no major difference in results exists between the experimental course and the control course, nor with those derived by department-wide evaluations. Therefore, the tests do not demonstrate any meaningful difference in student satisfaction of the course. The same applies to Hypothesis 2. There were no statistically significant results, but of the nonsignificant results, no major differences were illustrated between the experimental course and the control courses, whether taught by the PI or department wide. Thus, we do not have quantitative evidence that the flipped-hybrid model yields any meaningful difference in student performance. However, the qualitative results show that student satisfaction does exist in the PI's experimental course. There are two main reasons, closely related, why the quantitative results did not support the hypotheses.

First, this marked the PI's initial experience working within a flipped-hybrid environment. There seems to be a significant learning curve on how to manage this type of course properly. The course was designed over winter break and was implemented in a hurried pace. Additionally, the PI did not take into account the amount of time students would need to spend outside of class working on the new material. In other words, the professor kept an incredibly heavy reading load (15–25 pages per class night) of a very dense book of political philosophy. Based on casual conversations, the professor approximates that the typical student generally needed two hours to complete this amount of reading. Therefore, even if the students were more engaged in the class or retained a better grasp of the material, many could not keep up with the workload and thus either withdrew from the course or performed at low levels given the additional work. An important lesson is learned from this experimental course: one must keep in mind how much time students can devote to outside-of-class work. As Touchton (2015) expresses, flipping the classroom requires an additional 90 minutes of classwork for students outside of the classroom (32).

Assuming this number is accurate, on top of the reading load, students would typically be spending between four and five hours per class night trying to complete the reading, watching the PowerPoint lectures, and completing the online assessments.

Second, the PI put strict time limits on online assignments. For instance, for a six- to eight-question multiple-choice assessment on the PowerPoint lecture video, a time limit of about eight minutes was placed. Thus, although intending to force the students to watch the video and take superb notes in order to do well on the assessments, the time limit actually caused stress and anxiety during the assessments. The stress and anxiety, along with the short time to complete the questions thoughtfully, caused lower-than-expected assessments. Even though these were low-impact quizzes intended to help retain information and increase engagement and overall performance, this might have had countereffects, affecting the current study's results. However, this can be adjusted and taken into account in future revisions of the course. Finally, the results of the qualitative data indicate positive results that do not present themselves through quantitative data.

Although the statistical results do not support the hypotheses, this study still has merit. First, it demonstrates how much care and thought needs to be put into redesigning a course from scratch. Even with the best intentions, all negative consequences cannot be thought of beforehand and often need to be addressed during the semester. For instance, after giving midterm evaluations, the PI realized the workload was negatively affecting student performance and satisfaction and took measures to redress this by reducing the reading load by half. Unfortunately, the damage was already done but may have helped keep the rates similar to control classes.

Nonetheless, this study demonstrates that even with the lack of data on engagement, the flipped-hybrid design is no worse than the traditional lecture format and, for this reason, is worth pursuing further future research after a significant course redesign. In an era of administrative pushes to increase student AB rates and decrease DFW rates, professors need to be cognizant and cautious of stretching the student too thinly, causing opposite results. This research demonstrates that future results are very promising. The study shows the need for mixed methods research studies to provide the richest data. Using both quantitative and qualitative methods helps strengthen the results of a study or providing another lens from which to view the hypotheses. Lastly, the study sets up the basic course template for a flipped-hybrid methodology for professors to use not just in introductory level classes, but also throughout the broad array of courses taught within political science. The methods and lessons learned can be applied and used by all political science professors.

Conclusion and Next Steps for Research

Research has shown that students are more successful when they are engaged in university courses. Unlike traditional, lecture-based courses, flipped classes provide opportunities for deeper engagement with course materials through out-of-class activities that allow for more interactive, higher-order thinking questions to be explored with instructor support during class time. More specifically, through flipped-hybrid courses, these "out-of-class activities" that occur in flipped classes are put in an online format and are generally more complex than paper-based flipped assignments.

In the current study, an Introduction to American Government course utilized the flipped-hybrid model, and results were compared to previous non-flipped-hybrid courses taught by the same instructor as well as to the same course taught by other instructors in the department. Use of the flipped-hybrid model allowed the PI to guide the students in Socratic dialogue, debates, and simulations that would not have been possible if the course were taught in the traditional, lecture-based format. The three hypotheses were that the flipped-hybrid pedagogical model increases student (1) satisfaction, (2) performance, and (3) engagement more than traditional, lecture-based classes. DFW and AB rates were compared across experimental and control courses. Quantitative results indicated that the first two hypotheses were not clearly supported, with undetermined results for the third due to incomplete data. No significant differences were found between the control and experimental groups related to any of the two variables. Despite these "negative results" statistically, qualitative data showed student satisfaction with the flipped-hybrid model. For example, one student on a course evaluation wrote, "I have to say, I am a fan of the flipped class. The lectures and reading were not as time consuming as I first thought, and I liked being able to discuss them in class, rather than just have a professor who gives notes and basically reads them back to me in a lecture."

Although the quantitative results were not as anticipated, much can be learned from this study, and the results are an important contribution to the growing body of literature on student engagement and the flipped-hybrid classroom model. First, the current study shows that in this case, using a flipped-hybrid model, no negative outcomes occurred. This study can add to the larger body of literature on engagement to include a course that has not previously been studied, one in a political science department, thus also contributing specifically to the political science professor something that has been missing from the literature. In addition, through the PI's reflections and anecdotal discussions with students, reasons for the lack of improvement in the anticipated areas can be explained. The students were exposed to more material and more engaged with the content, but the overwhelming amount of readings and

requirements did not allow for this learning to show up as improved grades of A or B due to time constraints. This pilot study has provided the body of research on flipped-hybrid classrooms with important aspects to keep in mind when planning to implement this type of course, such as modifying or eliminating previously used assignments. Flipped-hybrid courses most likely will not be successful when the out-of-class hybrid elements are added onto an already full load of requirements. Care should be taken to investigate the amount of outside of class time that is required of students. Results from this study should not be cause to abandon the flipped-hybrid model. With adjustments, this model has merit even in the context described in this study.

The next steps in our research are to redesign the experimental, flipped-hybrid course with what we now know based on the current study. Course requirements will be modified to ease the amount of time students would need to spend reading and complete out-of-class online assignments. This redeveloped course will allow students to experience the positive aspects of the flipped-hybrid model without becoming overwhelmed with the course expectations. The next study will include richer data because of the addition of both a knowledge test (pre and post) and an engagement survey (pre and post). These instruments will be an important improvement to help gain data about not only how engaged students are more accurately, but also to see if their knowledge of the subject matter increases with the flipped-hybrid model. As discussed earlier, no engagement survey that fits the needs of this study exists, so one is in the process of being developed. This new survey will be class specific (rather than focused on an institution), will look at student engagement (rather than focusing on faculty), and will ask questions specifically about a hybrid model (rather than existing surveys that focus on only face-to-face or only online courses).

The improved research model will be implemented with more students over time. This will produce a pattern with more significant results. Finally, increased qualitative data, including interviews, observations, and open-ended survey questions of both students and faculty from experimental and control groups, could strengthen the current findings. Researchers should continue to investigate the possibilities inherent in this important, innovative model of instruction in order to add the political science discipline to the list of many others that have already found positive results with flipped-hybrid classrooms. Further, the use of the flipped-hybrid method should be studied in multiple course settings, including upper-level classes, capstone courses, and more generally through the broad spectrum of political science. The current research suggests the model is promising and thus relevant to the entire discipline.

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