Student Perceptions of Hybrid Courses in Higher Education

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Abstract
Online open-ended and closed-ended surveys were conducted in 2014-2016 among 191 students at a small, private university located in South Florida. Our main goals were to evaluate student perceptions of in-class and out-of-class assignments in hybrid courses, determine what students value most about these modes of learning, and recommend ways to maximize advantages and minimize disadvantages of each. We discovered that students value instant feedback and interacting with their peers when they are in class as in-class assignments were rated significantly higher than out-of-class assignments ($p < 0.05$) and higher ratings were significantly associated with responses associated with student-student interaction ($p < 0.05$). However, the time and place constraints of in-class work limits their ability to formulate their thoughts. Out-of-class assignments were appreciated for their flexibility of pace, time, and place, although students reported time-management problems as well. Like for in-class work, students valued the opportunity of reading their peers' answers as higher assignment ratings for out-of-class assignments were significantly associated with students' ability to read the responses of others. Although participants did not report an effect from specific learning differences, having to write for out-of-class work (as opposed to speaking in class) was reported as a hurdle. We discuss strategies for improving in-class and out-of-class assignments based on our study results.

Keywords: Hybrid learning, student perceptions, logistic regression, qualitative analysis

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Hybrid courses, also referred to as blended learning, combine traditional in-class learning with online methods (Pazich et al., 2018). Traditional college classes meet two or three times a week, during which class discussions, lectures, and student presentations take place; traditional out-of-class assignments consist of reading texts and writing essays. In contrast, a hybrid course meets just once a week, or even once every two weeks (Caulfield, 2011), and combines online instruction with face-to-face class meetings (Graham, 2005). Out-of-class assignments can include online discussions, videotaped student presentations, or lectures posted by the instructor.

Benefits of Hybrid Courses

Hybrid courses take advantage of online learning while offering the anchor of regular in-class meetings. Hybrid courses can improve students' learning experience, encourage independent learning, and help solve classroom space issues (Doering, 2006; Jackson & Helms, 2008). The variety of teaching modes in hybrid courses also diversifies the learning pathways available to students to accomplish course tasks. Halverson and Graham (2019) show that this flexibility encourages curiosity and attention while also requiring more effort on the part of the learner. This combination is optimal for deep learning to occur outside the classroom, while the face-to-face class sessions "preserve the benefits of humanness" that students can miss in fully online courses (Halverson & Graham, 2019, p. 157).

Blending online learning strategies with face-to-face class time mitigates the main disadvantages of purely online courses: a lack of interaction between students and instructors and a heavy focus on technology (Jackson & Helms, 2008). Still, students benefit from moving materials out of the classroom: they spend less time and money on getting to class, are affected less by inclement weather, experience fewer barriers to interact with peers and instructors and find online coursework more flexible (Jackson & Helms, 2008). As students attend fewer in-person classes, the time they would otherwise have spent in class can instead be scheduled independently. This flexibility provides more freedom, both in time and space, than traditional courses (Erdem & Kibar, 2014). An excellent example of this is the video lecture. Students can watch the lecture when it suits them and set their own pace. Morgan (2014) explains that in-class lectures are often too fast for some students and too slow for others. Video lectures allow students to watch difficult portions multiple times and speed through content they grasp more quickly (Morgan, 2014).

Research has also shown that students consider hybrid courses beneficial. More than 80% of the participants in two separate studies indicated that they preferred blended courses to traditional ones (Sajid et al., 2016; Kiviniemi, 2014). Furthermore, Kiviniemi (2014) found that students in the study's blended course did better on the final exam than those in the traditional course. Sajid et al. (2016) found that students performed just as well on exam questions related to materials discussed outside the classroom as on questions related to topics covered in class. Participants in a study by O'Brien et al. (2011) received similar final grades, whether they were in the traditional or hybrid version of the course under study.

Finally, several meta-analyses conclude that students in hybrid courses modestly outperform those in traditional courses, with 60% of students in traditional courses scoring below the mean of those in hybrid courses (Owston et al., 2020). In fact, Bernard et al. (2014) found that hybrid learning has shown greater student achievement than either strictly online or face-to-face instruction. The integration of technology-based pedagogy in hybrid learning courses is an effective method of improving in person instruction as it may increase the quality of out-of-class

work/studying. Conversely, hybrid learning offers the opportunity for students to learn skills in person that they need to be successful in the online environment, skill requirements that may act as a barrier in strictly online courses (Bernard et al., 2014).

Time Management

However, drawbacks to hybrid courses do exist. While the independence of hybrid courses allows students freedom and convenience, it also requires them to manage their time effectively. Students in hybrid classes have the additional task of scheduling discussions, lectures, or presentations that would otherwise take place in a traditional classroom setting. Time management is an important skill, and students who master it are better prepared to tackle future endeavors, including in the workforce (Velasquez, 2012). However, lack of these skills is a significant barrier to success in online learning tasks (Kauffman, 2015). In fact, one of the significant challenges of hybrid courses identified by Aycock et al. (2002) is that students have limited time management skills. Meanwhile, university courses provide unique opportunities to develop and improve these key skills (Alvarez Sainz et al., 2019), and hybrid courses can play a major role here. In other words, time management is an opportunity as well as a challenge; managing one's own time can be liberating or scary, an opportunity or a barrier. However, because hybrids are anchored in a regular in-class meeting, students will not be entirely adrift.

Time management also connects with learning differences, especially for students with Attention Deficit Hyperactive Disorder (ADHD), deficits in executive functioning (EF) skills, or the ability to plan, organize, prioritize, and self-regulate behavior. Students who receive more time on tests can benefit from extra time on other assignments as well. Assignments done during class time are therefore limiting for them, while on out-of-class assignments, they can take as much time as necessary. Working online gives students who need expanded learning time more flexibility (Repetto et al., 2010). The flip side of this benefit is that students with ADHD or EF deficits have difficulty managing their time (Daley & Birchwood, 2010), so the out-of-class work may pose a more considerable challenge for them.

Technology

Using out-of-class and online teaching methods means that hybrid courses rely on technology more than traditional courses. Babb et al. (2010) note that student computer literacy can introduce a weakness in the hybrid course formula, as can the instructor's technological inexperience. Lederman (2019) explains that faculty members' level of comfort with educational technology is quite low. Just 39% of faculty in *Inside Higher Ed's* 2019 Survey of Faculty Attitudes on Technology responded that they "fully support" increased use of such technology (Lederman, 2019, para. 33).

For hybrid courses, instructors need to set up discussions and monitor them to make sure they do not go off-track. If video lectures are part of the out-of-class work, instructors need to develop skills to record and make them easily accessible for students. Course texts should be available electronically to download or print. Good hybrid instruction requires a user-friendly website or online learning management system and training for instructors on assignment design, online feedback, and online community building (Babb et al., 2010; Dziuban et al., 2005).

Students rely on technology for out-of-class coursework. In fact, university administrators worry that too much of the students' grades can depend on technology working properly (Jackson & Helms, 2008). In addition, not all students have internet access off-campus and may therefore need to travel to campus after all. Recently, 21% of first-year college students

described their internet connection as unpredictable, terrible, or nonexistent (Carrasco, 2021). Nonetheless, according to Jackson and Helms (2008), the benefits of hybrid learning outweigh the drawbacks. For example, their study showed that students were pleased to save time by not having to drive to campus and attend class, even though these time savings were reduced by technology issues and emailing the instructor with questions.

Hybrid Learning as a Solution

Online and hybrid education have been pivotal during the Coronavirus pandemic, allowing students to continue learning from home or in physically distanced classrooms. In response to the Covid-19 pandemic, higher education institutions implemented emergency health and safety policies to prevent the spread of SARS-CoV-2 (CDC, 2021). Preventative measures such as wearing masks, routine cleaning, increased ventilation, handwashing, screening, testing, contact tracing, and quarantining were quickly implemented (Centers for Disease Control and Prevention, 2021; U.S. Department of Education, 2021). To allow for physical distancing in classrooms, many institutions also reduced room occupancy using various hybrid learning models (Van Acht, 2021; Dorn et al., 2020), such as with students in the classroom for half the lessons and learning online the rest of the time.

This shift has not been without its challenges. Before the pandemic, nearly half of faculty had no prior online teaching experience and perceived online teaching as less effective compared to on-ground learning (Lederman, 2019). Educators' pre-pandemic perceptions were met with students' dissatisfaction with online instruction due to the expense and need for additional equipment, technological support, and a stable high-speed internet connection (Burke, 2021; McKenzie, 2020). The Covid-19 pandemic also highlighted the equity gaps in online learning. Students from underserved communities are disproportionately affected and challenges are compounded by a lack of the digital literacy and technology necessary to study in a remote setting (U.S. Department of Education, 2021).

One solution to increase engagement was the adoption of Zoom. This platform provided a virtual space for learners to interact with their professors in real-time. In a study by Ensmann et al. (2021), one student said they liked, "having all of us use Zoom and requiring that we share video to have us all be engaged" (Ensmann et al., 2021, p. 43). In the same study another student noted "My teacher also used Canvas to post PowerPoints during every class instead of teaching live. It was easier for me to learn with those PowerPoints. Zoom really gave me a headache" (Ensmann et al., 2021, p. 43). These comments illustrate the need for institutions to provide several methods of course interactions to meet the varying needs of learners.

As remote learning continues to improve, the hybrid model becomes a more viable option for learners and solves administrative concerns with scheduling and space. Xiao et al. (2021) describe hybrid education as flexible "in terms of time, space and pace of learning" (p. 1204), letting students balance offline, online, synchronous, and asynchronous modes of learning. Additionally, hybrid learning can "generate cost-savings from efficiencies in faculty classroom time, in reduced duplication of faculty lines and expertise, and in scheduling facilities" (Pazich et al., 2018, p. 46). As institutions reduce redundancies and overhead, they can focus on developing programming that "takes advantage of their strengths and helps differentiate themselves in a competitive marketplace" (Pazich et al., 2018, p. 46). All in all, there are many reasons to continue studying how to combine in-class and out-of-class assignments to optimize the student experience.

The 2013 introduction of the iPad for undergraduate students (see Unger et al., 2014) and the 2014 introduction of hybrid courses at our university provided an opportunity to evaluate student perceptions of in-class and out-of-class assignments in a hybrid course and how technology affected the students. Our research goal was to determine what students valued most about the different modes of hybrid coursework (in-class and out-of-class). In addition, we aimed to recommend ways to maximize the advantages and minimize the disadvantages identified by students of both in-class and out-of-class assignments.

Research Methods

Study Overview

The study took place over four consecutive semesters, starting in the fall semester of 2014 in two hybrid courses, taught by two instructors (Table 1). Across those courses, 70 students were enrolled. In both the spring and fall semesters of 2015, the study included two courses taught by different instructors, with a total of 45 students per semester. Finally, in the spring of 2016, one course with 31 students was surveyed.

The courses studied were at the 300 and 400 levels (junior and senior) in the university's writing-intensive core curriculum. The content and assignments of the courses differed, and the instructors also employed different in-class and out-of-class assignments. In the 300-level script analysis course, out-of-class assignments consisted of submitting written answers to questions about the scripts they read and collaborating on wiki pages that functioned as discussion boards, while in class, students discussed the plays' plots, genres, characters, and themes. In the 400-level project-based research course, students completed online discussion boards, peer-reviewed group presentations, and watched video lectures, whereas in class they practiced and discussed research ethics, methods, and data analysis. In the classrooms, students sat at individual desks that could easily be moved into small groups or a large circle for discussions. Blackboard was the Learning Management System used for out-of-class work, and the 300-level course also used a multi-touch iBook on the iPad.

A short questionnaire was administered five to twelve times per semester, with an average response rate of 27% (Table 1). Contributing factors to the response rate were conducting the survey at the end of class sessions, when students were eager to leave the room, and repeating the same survey multiple times, possibly making it less interesting for students to complete. The survey was voluntary, and both phases of the study were approved by the university's Internal Review Board (IRB). Permission to extend the study into the following semesters was also given by the IRB. The study consisted of two phases: exploratory and confirmatory.

Table 1

Participant Information

Variable	Fall 2014	Spring 2015	Fall 2015	Spring 2016
Courses	2	2	2	1
Enrolled students	70	45	45	31
Instructors	2	2	2	1
Weeks surveyed				
Survey 1	2-13	2-5		
Survey 2		7-8, 10, 12, 14	2, 4, 6-7, 9, 11	4-6, 8, 10
Number of responses	178	103	105	32
Response rate	21.2%	25.4%	38.9%	20.6%
Type of data collected	Qualitative	Quantitative & Qualitative	Quantitative	Quantitative

Phase One: Exploratory

The data for this study were collected using short, anonymous, online questionnaires using Google Forms. During the first semester and at the initial five points during the second semester of this study, the questions included a mix of six closed-ended and open-ended, short-answer questions (Table 1, Appendix A). Students rated the in-class and out-of-class assignments on a 1-5 scale and described both assignment modes' advantages or disadvantages. The open-ended character of the latter question allowed us to find out what the students liked and disliked about the teaching strategies without pre-formulating any categories.

At the start of the semester, students were provided with a consent form and an explanation of the study. Near the end of the class period, students were asked to fill out the questionnaire. Participation was voluntary, and for students to choose not to participate, the survey included two initial questions functioning as an exit ticket, an academically beneficial exercise (Akhtar & Saeed, 2020), addressing what the students had learned that week and what was most unclear. Students could then complete the rest of the survey, which was marked "for research purposes" and emphasized as voluntary.

Phase Two: Confirmatory

Based on the exploratory survey results, we identified several themes as to why students liked or disliked assignments. To confirm why students seemed to like and dislike in-class and out-of-class assignments, we administered a new survey starting in the spring 2015 semester. Students rated the in-class and out-of-class assignments and checked all the reasons they liked or disliked them (Appendix B). The confirmatory survey experiment was repeated in fall 2015 and spring 2016 to determine if the results were reproducible.

To determine if there was a significant difference in how students rated in-class and out-of-class assignments, a t-test ($p < 0.05$) was performed on the assignment ratings. In terms of determining which reasons were most abundantly cited for liking or disliking an assignment type (in-class or out-of-class) and how trends in like and dislike responses corresponded to how highly students rated assignments, a second method was employed. The data was divided into four analyses groups: in-class assignment ratings and corresponding like responses, in-class assignment ratings and corresponding dislike responses, out-of-class assignment ratings and corresponding like responses, and out-of-class assignment ratings and corresponding dislike responses. Within these analyses groups, students were sorted by how they rated in- and out-of-

class assignments. The number of students within each rating group who cited each reason was calculated. A binary logistic regression was performed on the data, with the assignment rating as the independent variable and whether the student selected a specific like or dislike (e.g., not enough time to formulate thoughts, feedback from peers, etc.) as the dependent variable. As a binary logistic regression was performed for each like or dislike response independently, a Bonferroni adjustment was applied to the p-value whereby the alpha (< 0.05) was divided by the number of logistic regressions for each of the four analyses groups. As there were 8 tests for the in-class and out-of-class likes analyses groups, this made the alpha 0.00625 for those analyses groups. As there were seven tests for the in-class and out-of-class dislikes analyses groups, this made the alpha 0.00714 for those analyses groups. Only logistic regressions with p-values less than the adjusted alphas were considered significant. The modeled probability of a student selecting a specific like or dislike based on their rating of the assignment was also calculated as part of the logistic regressions.

Results

Exploratory Data

From the qualitative data collected during the first phase of the study, eight distinct patterns emerged. These themes are based on the participants' written answers to the open-ended questions: "What was the advantage / disadvantage of doing this assignment outside class instead of in the classroom (in class instead of outside of class)?" Most of these themes encompass both positive and negative answers. For example, instant feedback was viewed as an advantage of being in class, while a lack of it was reported as a disadvantage of the out-of-class assignments.

The first theme is that students appreciate sharing with their peers in class. They hear their classmates' ideas and feel that their own views are heard by others. Instead of being stuck inside their own heads, they can solve assignments quickly with help from their peers. Additionally, students can try their own ideas out on their peers and validate them, without committing to them in writing for a discussion board or essay. Students wrote:

> We can bounce ideas off our peers and talk about aspects of characters our peers may have noticed.
>
> I was able to speak my mind where everyone can hear me.
>
> I learned the value of working with other classmates.
>
> I like how I can work with other people to find answers more quickly and share our own insights to gain a deeper understanding.

A related theme is that students show strong interest in being active in the classroom through hands-on learning. This hands-on learning focuses on engaging the students in activities, such as in-class research, peer-editing, short presentations, and data analysis. This active learning strategy contrasts with listening passively to a lecture. Students wrote:

> It's fun to see other student's presentations.
>
> We have to do it, we don't have a choice.
>
> I liked that Professor Simpson helped us get started.

> I have learned that in writing we do make errors. We had an interesting peer share this week and I believe it was actually good to see mistakes and have someone else review and edit.

Another theme from the qualitative data is that some students prefer to talk in class, while others prefer to write outside of class. Some students thrive in an environment where they can quickly express their ideas and state these ideas orally. In contrast, other students prefer to take more time to formulate their thoughts, perfecting them before submitting them to be read. Some students prefer speaking in class and wrote:

> Face to face discussions

> Being able to have a verbal conversation about what was going on in all of our different lives and cultures

Other students prefer writing online, responding:

> Better to just post what we have instead of shouting in class

> We got more time to write our responses and explain ourselves

> I like that I can do outside research before I submit my response.

> I have more time to formulate my response.

Students also indicate that they enjoy receiving feedback. Indeed, students appear to crave feedback. This feedback can come from their instructor, but they also like receiving feedback from their classmates. Students wrote:

> More input from students and more time with the professor for clarifying any confusion

> Allows us to ask question

> Being able to use examples from people in class

> Disadvantage [of online] is there is no class discussion.

Another theme that appears in both positive and negative responses from students is the issue of time management. Students struggle with managing their time for the out-of-class coursework while at the same time enjoying the freedom to complete work whenever it suits them. On the other hand, students like that attending class forces them to be engaged and take care of their schoolwork, while they also feel frustrated by the rigidity of time and place of the in-class work. Students wrote:

> You don’t rely on yourself to do this on your own. in class you are required to do it in class

> It is easier to do things in class and on a strict time schedule

Working independently outside of class has benefits and drawbacks. Students wrote:

> Advantage: more time to complete it

> Focus deeply in the reading on your own time instead of rushing into a certain time limit

I always forget

Having to wait for other students to turn their work in on time

Related to the "when" of in-class and out-of-class work is the "where": students indicate that having to be in the classroom is a drag while doing the out-of-class work wherever they want is a boon. They can select a location that specifically works for them and their learning style. Students wrote:

Having to be in class stead of home or wherever you want.

Was able to do it in a comfortable quiet place felt more relaxed [than] a classroom

that we can do research and watch the video calmly at home

An unanticipated pattern was that students value having the time to do additional research. This was primarily mentioned as an advantage of the out-of-class assignments. Because students can complete the out-of-class tasks at their own pace, they have more time for research than during more strictly timed exercises in class. Students wrote:

I liked doing my own research. This way I have a lot more time to work on the assignments out of class too.

Advantage: more time to research and look into the topic

We got to do our own research and put our own opinions in the discussion

Most of the out-of-class assignments used in the courses studied rely on technology, which sometimes causes issues for students. At times, videos do not play, websites do not respond, or log-in information does not work, causing frustration and even preventing students from doing the work at all. In addition to specific issues like these, some students are simply uncomfortable using technology for coursework. Students wrote:

I don't like to use the iPad or a lot of technology and I learn and can connect more in class.

The disadvantage is […] relying on technology to work all the time

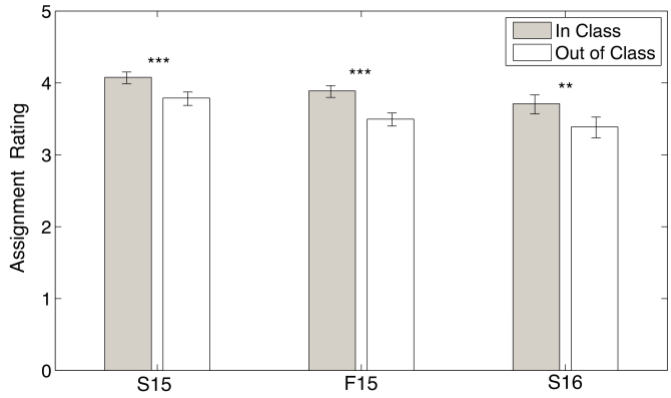
I'd prefer to do this in class because of the technology use, which took more time than the assignment itself

Confirmatory Data

Averages and standard error of the assignment ratings for the confirmatory phases of the study (spring 2015, fall 2015, and spring 2016) are shown in Figure 1. In-class assignments were rated higher than out-of-class assignments every semester, and the difference was either significant ($p < 0.05$) or highly significant ($p < 0.01$). The closed-ended responses developed from the exploratory phase are shown in Table 2.

Figure 1

Average Assignment Ratings for In-Class and Out-of-Class Assignments for the Spring 2015, Fall 2015, and Spring 2016 Semesters with Their Standard Error. Stars Denote Significance



*Differences, *** < 0.01, ** < 0.05.*

Table 2

Like and Dislike Responses Students Could Pick for Liking and Disliking In-Class and Out-of-Class Assignments on the Surveys

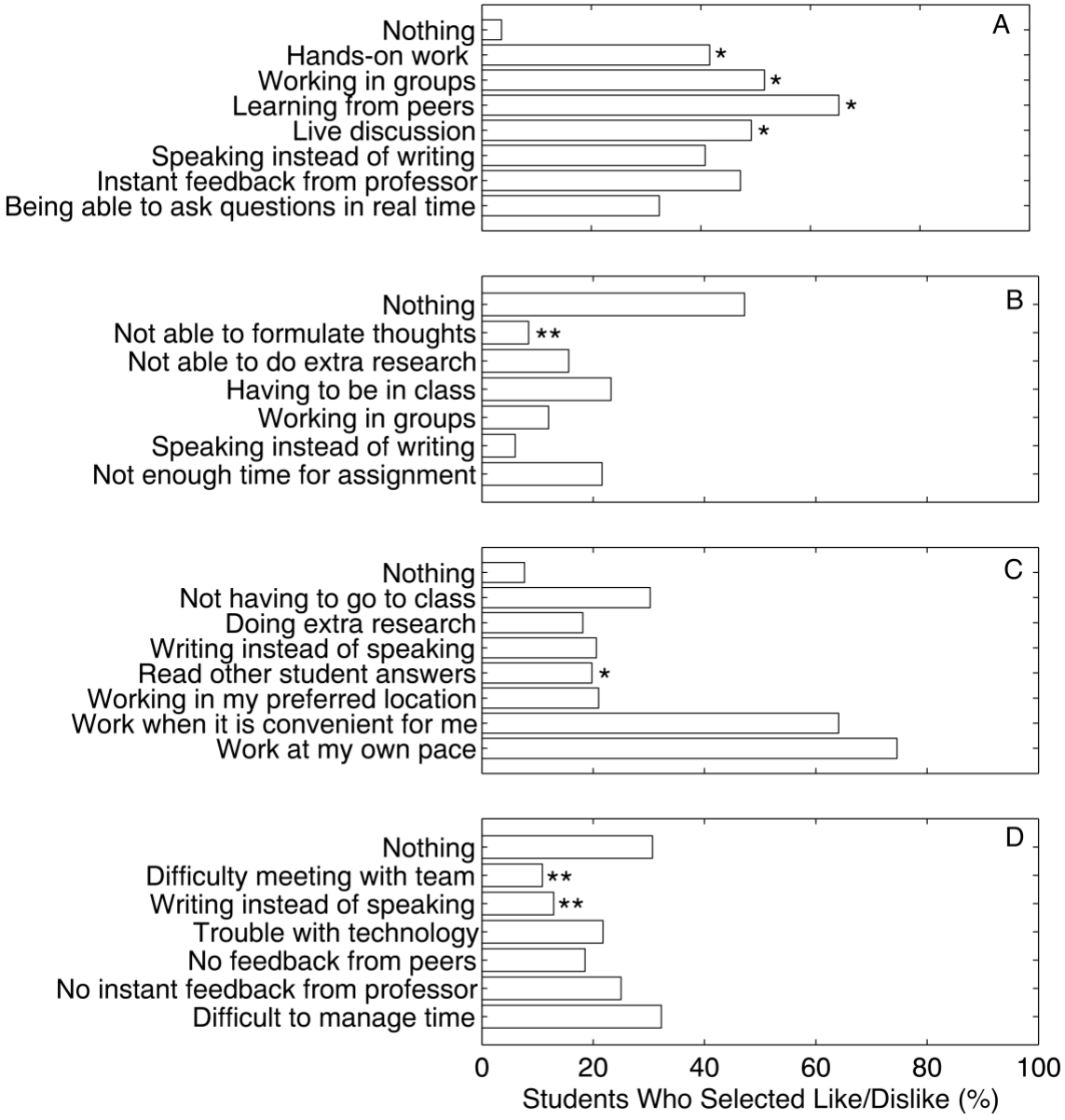
"Like" Options	"Dislike" Options
In Class Assignments	
Being able to ask questions in real time	Not enough time for the assignment
Instant feedback from the professor	Speaking instead of writing
Speaking instead of writing	Working in groups
Live discussion	Having to be in class
Learning from peers	Not able to do extra research
Working in groups	Not able to formulate my thoughts
Hands-on work	Nothing
Nothing	
Out of Class Assignments	
Work at my own pace	Difficult to manage time
Work when it's convenient for me	No instant feedback from professor
Working in my preferred location	No feedback from peers
Read other student's answers	Trouble with technology
Writing instead of speaking	Writing instead of speaking
Doing extra research	Difficulty meeting with team
Not having to go to class	Nothing
Nothing	

Percentages of like and dislike responses chosen by students grouped by assignment rating and significance results of the logistic regressions are shown in Figure 2. The most commonly selected likes of in-class assignments among all students were "learning from peers" (65%), "working in groups" (52%), and "live discussion" (49%). Only significant positive regressions (students who rated an assignment higher were more likely to select a specific like) were identified in the in-class likes. The significant responses were "learning from peers,"

"working in groups," "live discussion," and "hands-on work." The most commonly selected dislikes of in-class assignments were "nothing" (47%), "having to be in class" (23%), and "not enough time for the assignment" (22%). One significant negative regression response was identified (students who rated the assignment lower were more likely to select a specific dislike). The only significant dislike response was "not able to formulate my thoughts."

Figure 2

Percentage of Students That Selected a Specific In-Class Assignments "likes" (A) and "dislikes" (B), and Out-of-Class "likes" (C) and "dislikes" (D).



Note. Stars indicate significant logistic regression results. One star indicates a positive regression, students who rated the assignment higher were more likely to select that response. Two stars indicate a negative logistic regression, students who rated the assignment lower were more likely to select that response.

The most commonly selected like response for out-of-class assignments were "work at my own pace" (75%), "work when it's convenient for me" (64%), and "not having to go to class" (30%). One significant positive regression response was identified as "read other students' answers." The most commonly selected dislikes for out-of-class assignments were "difficult to manage time" (32%), "nothing" (31%), and "no instant feedback from the professor" (25%). The two significant negative regression responses were identified as "writing instead of speaking" and "difficult meeting with team." Each of these significant results are supported by the modeled probabilities of students within a rating group selecting a specific response (tables in Appendix C).

Discussion

Overall Trends

The overall trends of the response data provide insights into how students perceive the benefits and costs of in-class and out-of-class assignments. As these hybrid courses met just once a week, the instructors initiated several activities involving students talking to each other during physical class time. This gave them opportunities to share what they have come up with on their own and build on the ideas offered by other students. The students' preference for these activities is shown in the confirmatory data. The most commonly selected like responses for in-class assignments all revolved around students interacting with other students (e.g., "learning from peers," "working in groups," etc.). Over half of the students chose these two responses indicating these likes were more commonly selected than not and driven by the group as a whole instead of a few individuals. This type of student interaction is more difficult to foster in the online environment but given the magnitude of the students who selected these like responses of in-class assignments, developing online assignments that mimic in-class peer interaction will benefit student perceptions of hybrid learning.

Regarding the dislike responses of in-class assignments, the most commonly selected response was "nothing," with almost half the students choosing solely this response. This indicates many students are content with the traditional in-class model. "Having to be in class" (23%) and "not enough time for the assignment" (22%) were the next two most commonly selected dislike responses. "Having to be in class" links to the more convenient format of online learning, whereby students can more easily fit the online portions of the class into their schedules. "Not enough time for the assignment" hits at a more complex pedagogy issue. Not all students learn at the same speed, and the in-class assignments force slower students to keep pace with the class, possibly at the expense of truly understanding the lesson the assignment is trying to teach. As almost a quarter of respondents selected this response; a sizable part of the sample experienced being forced into a timed environment as detrimental. The fact that students value a release from these time constraints is reflected in the out-of-class like response data as the most commonly selected response was "work at my own pace" (75%). A much larger percentage of students selected "work at my own pace" as a like of the online assignments than students who selected "not enough time for the assignment" in the in-class assignment, indicating that some students preferred to move at a faster pace than was provided in class.

The rest of the common responses have to do with the convenience of the online environment. The second most commonly selected like response for online learning was "work when it is convenient for me" (64%), which also has a corollary within the dislike responses of

in-class assignments as "having to be in class." Clearly, students value the flexibility of learning on their own terms, including when they feel most ready to tackle the course content. However, there is a tradeoff with online assignments. The most commonly selected dislike response of in-class assignments was "difficult to manage time" (32%). Students like the online format because they can learn at their own pace, but a third of the sample found it challenging to self-assess how much time they would need for or when they should work on an out-of-class assignment. Time management issues may be especially relevant for students with learning differences that hamper their ability to focus and plan. These students can take advantage of extended time for out-of-class work but may have trouble prioritizing or remembering assignments. If they don't remember to do the work or put it off until the last minute, having extended time is no longer a benefit. In that case, the restrictions and structure of in-class work can be a boon: the time is partitioned up for the students, and all the student needs to do is show up, sit down, and follow instructions. Time management issues were not a problem for all students in the samples, however, as the second most commonly selected response for out-of-class dislikes was "nothing" (31%), indicating about a third of the respondents felt at ease in the online environment.

Every possible like and dislike response was selected even if it was not among the most obvious trends previously discussed. These trends include students' value of feedback from their professor, trouble with technology, working in their preferred location, and the desire to conduct additional research outside of class.

Both our study and previous studies (Jackson & Helms, 2008) show that students value the convenience of work outside of class, although our students mainly focused on the downside of having to be in class rather than having trouble getting there. Nonetheless, this study confirms that some students indeed dislike having to come to and be in class. Previous studies also indicate the benefits of working at one's own pace and at a preferred time and place (Erdem & Kibar, 2014; Morgan, 2014). Students in our study overwhelmingly confirmed that these were benefits of the out-of-class assignments. Participants in our study also confirmed previous studies (Aycock et al., 2002; Kauffman, 2015), showing that time management posed a difficulty for online work, although they did not specify whether learning differences were at the root of these difficulties. Underlying learning differences may also be at the core of our participants' dislike of writing required for out-of-class assignments. Here, too, our participants did not make this explicit. Finally, issues with technology (Babb et al., 2010; Jackson & Helms, 2008) were also invoked by our study's participants, but in the quantitative phase of the study, these issues were not chosen often, nor were they a major factor in whether students disliked out-of-class work.

Trends by Ratings

Trends in the logistic regression highlight aspects of in-class and out-of-class assignments that should be modified to increase student engagement. All of the responses that were positively correlated with assignment ratings (students who rated the assignment higher were more likely to select these responses) had to do with student-to-student interaction. These significant responses in-class were "hands-on work," "working in groups," "learning from peers," and "live discussion," and out-of-class was "read other students' answers." Conversely, assignment responses that were negatively correlated with assignment ratings (students who rated the assignment lower were more likely to select these responses) in-class were "not able to formulate thoughts," and out-of-class were "difficulty meeting with team" and "writing instead of speaking." The latter two of these three dislike responses were also related to peer

interactions. Students again highlighted their preferences to speaking with each other instead of writing their assignments, although some find it difficult to meet with other members of their group. Thus, ways to increase the engagement of students who rated these out-of-class assignments lower will involve increasing peer interaction among students.

Any changes in the formatting of assignments in hybrid classes that increase peer interactions will also need to be balanced with allowing students enough time to participate at their own pace and the course's learning objectives. For example, increasing in-class peer interactions by creating more in-class assignments causes stricter time constraints, an issue for many students. Increasing peer interactions outside of the classroom is another option, but several students indicated that meeting with their peers was difficult. So, any increase in out-of-class peer interactions needs to be sufficiently structured to ensure that non-active peers do not burden students. Another issue of balance includes the negatively correlated response "writing instead of speaking." While reducing the writing and increasing the speaking would increase students' opinion of the out-of-class assignments, it is not consistent with the learning objectives of these courses. Both courses were-writing intensive and had writing skills as learning objectives. Therefore, moving writing assignments to live discussions to increase student engagement is at odds with the course content for these specific classes. The abundance of this response also highlights the importance of the flexibility inherent in hybrid courses: it does not rely just on oral participation or just on written participation, but on equal helpings of both. If students are weaker at communicating orally, they can make up for that weakness in their written assignments while still being challenged in the classroom to keep improving their speaking skills. Other students, who shine in an oral classroom setting, are not handicapped by an all-written environment such as in many purely online courses. Instead, those students can score points during in-class discussions and activities while practicing writing skills as well.

Recommendations

Hybrid courses will continue to become more common, either out of necessity (saving limited classroom space with increasing enrollment numbers, physical distancing during Coronavirus flareups) or for convenience (saving students' time spent commuting and, in the classroom). Given the results of this study, we can provide recommendations on implementing hybrid curricula without sacrificing learning objectives. In other words, how can faculty members optimize the in-class sessions, while maximizing learning —and minimizing frustration—for out-of-class assignments?

The study participants often indicated that they valued feedback from their instructor but especially from their peers. When designing assignments for both in-class and out-of-class, it is essential to take this into account. Students enjoy live discussions, which allow them to hear their peers' views and express their own. In addition, students like collaborating with their classmates, working in groups to complete in-class assignments. Based on this feedback, it is crucial to include in-class activities that maximize student interaction in the classroom. Additionally, in-class assignments that allow the instructor to provide immediate feedback use the limited in-class time effectively. One method of increasing peer interaction outside the class is increasing the use of discussion boards and group video conferencing. Discussion boards allow students to take their time to synthesize information and formulate a response. Creating deadlines for responses in discussion boards ahead of the next in-class session will ensure students have time to view and contemplate other student responses before returning to class. Students can log their response as a video instead of in written format. While students like to "read responses from other students,"

we did not include the option of *watching* responses from other students. It is unclear whether, if students could view recorded contributions from other students, that would suffice for reading other student responses. If the issue is a time issue, in that students like to read responses because they can read them slowly to digest them or as many times as they like, a discussion based on video clips might substitute. It would also alleviate the negative of "writing instead of speaking." Therefore, students still interact with their peers, but on a longer time scale than a strict class period. Alternatively, when working in groups, the instructor can require groups before they leave the class session to set standing appointments outside of class for video conferences to work on group assignments. Therefore, students will still be able to work in their preferred environment, with more flexibility in time, but will have the structure needed for a group activity to be successful. Having students set their meetings in class would also help with time management as students cannot keep putting off working on an assignment.

A solution to the major issue highlighted by students with in-class assignments—"not enough time for the assignment"—is to allow students to continue their in-class assignments outside of class on their own time. Thus, students may be required to start an assignment in-class where they can take advantage of peer interaction and feedback but have the option to finish the assignment out-of-class. The last recommendation deals with the issue of time management raised by students concerning out-of-class assignments, which was shown to be a benefit as well as a drawback of hybrid learning. Completing work individually outside of the classroom provides students the freedom to work when and for how long they want on a required task. They can time their work when they feel most motivated to complete it, and they can speed through easy parts while doing additional research for the more difficult sections. It is, therefore, essential to allow students enough time to start and finish their work by sending out the assignment several days before it is due. Another recommendation is to list the expected amount of time required for most students to complete it in the assignment description. Although students need to understand whether they typically take more or less time than the recommended completion time, even if they are unaware of where they stand regarding this benchmark at the beginning of the semester, they will develop some idea during the semester. Sending out reminders is also helpful since students indicate that they forget to do the work, losing all the benefits of the course's flexibility.

Regarding the major like and dislike responses, some participants in this study indicated that they felt challenged by the course's format and the technological requirements. Because much of the out-of-class work relies on technology, less computer-literate students were at a disadvantage. This means that it is vital to spend time familiarizing students with programs, apps, and websites the course will use. For example, when assigning an out-of-class video lecture, the instructor can ask the students to navigate to the video and make sure it plays while they are still in the classroom. This will give students confidence and prevent questions and confusion later in the week.

We also have recommendations that address the less frequently selected like and dislike responses. In-class assignments should be designed so instructors can quickly assess them as correct or incorrect to increase instructor feedback. This allows instructors to give fast and straightforward feedback as they walk around the room. As for the freedom of allowing students to learn where and when it is convenient for them, the hybrid model is already well adapted. Some students thrive in the stimulating classroom environment where they receive instructor feedback and input from peers, while others experience that same environment as distracting or "shouting in class." For those students, the hybrid format allows them to spend half the time

usually spent in class in a less distracting environment of their own choice. Aside from this issue of choosing one's own location to learn, the hassles of having to be in class involve commuting and time management: leaving on time, arranging other events around class times, refusing hours at a part-time job. When looking at being in class from the students' perspective, it takes a lot longer than the 75 minutes spent in the classroom. The preference for completing additional research is also already well adapted in the hybrid model. Students can be encouraged to do research, either individually or in groups, and time in-class can be set aside for this component. Additionally, out-of-class assignments can include specific instructions that encourage students to do more research, sending them in the direction of reliable sources.

Limitations

This study has limitations that need to be considered when interpreting the results. First, this study was based on courses taught by two instructors, making the sample quite small. In addition, the instructors monitored the data collected during the semester and adjusted their teaching style to the feedback. This may have affected the data subsequently collected. Also, the same students were surveyed several times during each semester, meaning that each participant was represented multiple times in the data. Finally, the participants were students at a small, private university with special facilities for students with learning differences. Thus, even though participants did not refer to learning differences affecting their perception of course assignments, this may have affected the results, and a similar study at a different university may yield different outcomes.

We suggest, therefore, that similar research is conducted at larger as well as public universities interested in learning the students' perceptions of hybrid courses. Variations in classroom facilities and online learning management systems may affect students' perceptions and experiences. Also, by collecting data from different courses with more varied in-class and out-of-class assignments, students' likes and dislikes can be linked more clearly to specific coursework. Another way to link student perceptions to specific coursework is by creating online and face-to-face versions of the same assignment. This will be valuable for developing future hybrid courses, allowing instructors to choose which work to assign in-class and out-of-class.

Conclusion

This study found that students in the hybrid courses evaluated consistently rated in-class assignments higher than out-of-class assignments. Statistical analyses indicated that this is primarily due to peer-to-peer and peer-to-instructor interaction such as direct feedback, discussions, and group activities. However, some students mentioned not having enough time to form their thoughts. Conversely, in out-of-class assignments, students like reading other students' submissions in the online discussion environment, which allows them to digest other students' ideas and formulate a response at their own pace. The drawbacks of out-of-class assignments reported by some students are that they prefer speaking to writing and that effectively managing their time is challenging. For instructors to make the most of the hybrid format, they should maximize peer-to-peer interaction and opportunities for instant feedback. Outside the classroom, we recommend designing assignments that facilitate peer-to-peer exchanges and for which the instructor can easily and quickly provide feedback. These online assignments include written discussion boards, video discussions, and scheduled group work. For example, instructors could have students set their meeting times before leaving class. Outside-the-class group work can take advantage of video meeting technology, enabling students to

collaborate from their preferred location. Additionally, instructors can work with their students to develop time management skills by sending reminders, creating a work schedule, and setting staggered deadlines.

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Appendix A

Survey 1

Evaluation. * Required

What did you learn this week? (Open-ended)
What is still most unclear this week? (Open-ended)

QUESTIONS BELOW ARE FOR RESEARCH PURPOSES

Please fill the following questions out. Your participation is voluntary, and you will contribute to research about learning techniques. Please refer to the consent form for more information.

This week's in-class assignment: Analysis of marijuana discussion board

How would you rate this week's in-class assignment?

1 2 3 4 5

Not at all interesting Very interesting

What was the advantage / disadvantage of doing this assignment in class instead of online? (Open-ended)

Would you have preferred to do this assignment online?

- Yes
- No
- No preference

This week's out-of-class assignment: PHRP certificate

How would you rate this week's out-of-class assignment?

1 2 3 4 5

Not at all interesting Very interesting

What was the advantage / disadvantage of doing this assignment outside class instead of in the classroom? (Open-ended)

Would you have preferred to do this assignment in the classroom?

- Yes
- No
- No preference

Appendix B

Survey 2

Evaluation

* Required

What did you learn this week? (Open-ended)

What is still most unclear this week? (Open-ended)

QUESTIONS BELOW ARE FOR RESEARCH PURPOSES

Please fill the following questions out. Your participation is voluntary, and you will contribute to research about learning techniques. Please refer to the consent form for more information.

This week's in-class assignment

How would you rate this week's in-class assignment?

1 2 3 4 5

Not at all interesting Very interesting

What did you LIKE about doing this assignment in class instead of outside class?

Check all that apply.

- Learning from peers
- Instant feedback from professor
- Speaking instead of writing
- Live discussion
- Working in groups
- Being able to ask questions in real time
- Hands-on work
- Nothing
- Other:

What did you DISLIKE about doing this assignment in class instead of outside class?

Check all that apply.

- Not enough time to for the assignment
- Speaking instead of writing
- Working in groups
- Having to be in class
- Not able to do extra research
- Not able to formulate my thoughts
- Nothing
- Other:

Would you have preferred to do this assignment online?

- Yes
- No
- No preference

This week's out-of-class assignment

How would you rate this week's out-of-class assignment?

If you did not do the out-of-class assignment, please leave this question blank and write "did not complete" under "other" of the next question.

1 2 3 4 5

Not at all interesting Very interesting

What did you LIKE about doing this assignment outside class instead of in the classroom?

Check all that apply.

- Work at my own pace
- Work when it's convenient for me
- Working in my preferred location
- Read other students' answers
- Writing instead of speaking
- Doing extra research
- Not having to go to class
- Nothing
- Other:

What did you DISLIKE about doing this assignment outside class instead of in the classroom?

Check all that apply.

- Difficult to manage time
- No instant feedback from professor
- No feedback from peers
- Trouble with technology
- Writing instead of speaking
- Difficulty meeting with team
- Nothing
- Other:

Would you have preferred to do this assignment in the classroom?

- Yes
- No
- No preference

Appendix C
Supplementary Material Tables

Table C1

Probabilities a Student Would Choose Each Like Based on Their Rating of the In-Class Assignment

	1	2	3	4	5
Being able to ask questions in real time	0.18	0.22	0.27	0.32	0.38
Instant feedback from professor	0.23	0.30	0.38	0.47	0.57
Speaking instead of writing	0.19	0.25	0.33	0.41	0.50
Live discussion	0.14	0.23	0.35	0.50	0.64
Learning from peers	0.16	0.29	0.48	0.67	0.82
Working in groups	0.10	0.19	0.34	0.52	0.70
Hands on work	0.01	0.17	0.27	0.42	0.57
Nothing	0.29	0.14	0.06	0.03	0.01

Table C2

Probabilities a Student Would Choose Each Dislike Based on Their Rating of the In-Class Assignment

	1	2	3	4	5
Not enough time for assignment	0.37	0.31	0.53	0.21	0.17
Speaking instead of writing	0.13	0.01	0.01	0.01	<0.01
Working in groups	0.34	0.24	0.17	0.11	0.07
Having to be in class	0.35	0.30	0.27	0.23	0.20
Not able to do extra research	0.12	0.13	0.14	0.16	0.17
Not able to formulate thoughts	0.50	0.29	0.14	0.07	0.03
Nothing	0.23	0.26	0.30	0.34	0.38

Table C3

Probabilities a Student Would Choose Each Like Based on Their Rating of the Out-Of-Class Assignment

	1	2	3	4	5
Work at my own pace	0.57	0.64	0.71	0.77	0.83
Work when it's convenient for me	0.42	0.51	0.60	0.68	0.75
Working in my preferred location	0.31	0.27	0.23	0.20	0.17
Read other students' answers	0.04	0.07	0.13	0.22	0.36
Writing instead of speaking	0.39	0.34	0.28	0.23	0.19
Doing extra research	0.23	0.23	0.23	0.23	0.22
Not having to go to class	0.50	0.42	0.34	0.27	0.21
Nothing	0.25	0.16	0.09	0.05	0.03

Table C4

Probabilities a Student Would Choose Each Dislike Based on Their Rating of the Out-Of-Class Assignment

	1	2	3	4	5
Difficult to manage time	0.40	0.37	0.34	0.31	0.28
No instant feedback from professor	0.26	0.26	0.25	0.25	0.24
No feedback from peers	0.16	0.17	0.18	0.19	0.20

Trouble with technology	0.15	0.17	0.2	0.23	0.26
Writing instead of speaking	0.60	0.35	0.16	0.07	0.02
Difficulty meeting with team	0.34	0.22	0.13	0.08	0.04
Nothing	0.26	0.28	0.30	0.31	0.33