



## Accounting Student Perceptions toward Online Flipped Statistics Course and Effective Methods to Promote Engagement, Increase Satisfaction, and Improve Self-Efficacy

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### Abstract

The COVID-19 pandemic has motivated many educational institutions in the world to adapt their delivery method from conventional (offline) teaching/learning to online methods, and one of the methods is the Flipped Classroom. Nonetheless, the shift from offline classroom instruction to online learning must ensure its long-term quality, which can be effectively delivered to students. Thus, this study investigates the effectiveness of ~~the~~ an online flipped classroom teaching model as perceived by learners, applied due to the COVID-19 pandemic. The sample for this study includes 41 accounting students taking an online statistics course in their 5th and 7th semesters in a private university in Indonesia. The methods are both quantitative—employed through a questionnaire—and qualitative through applied semi-structured interviews as well as for analyzing the collected corpus. Ultimately, the study concludes that, in terms of student engagement, satisfaction, and efficacy, the flipped classroom method is effective. Lastly, the significance of the research shows recommendations for improving the application of the flipped classroom approach in the current context of online learning amidst the prevailing policy in Indonesia and beyond.

**Keywords:** Accounting education; higher education; online flipped classroom; student perception

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### INTRODUCTION

Triggered by the COVID-19 pandemic, most education institutions have faced a sudden and urgent need to adapt their teaching methods. In the university setting, online learning suddenly became inevitable as lecturers and students could not attend the classroom in person amid the pandemic restrictions. Educators quickly realized the need for virtual teaching to be as effective and interactive as conventional learning. Thus, the flipped classroom model was developed as an innovative teaching approach.

The flipped classroom model is a learning approach integrated with technology that has three phases of learning activities: *before class*, *in-class*, and *after class*. Yin (2020) suggests that flipped classrooms promote active learning by allowing students the autonomy to explore knowledge as individuals or in groups with the teachers guiding them. These activities typically facilitate student-centered learning.

Research explores whether accounting students have difficulty completing a statistics course delivered in an online flipped classroom. A couple of studies have mentioned that learning statistics is somewhat frustrating for students which leads to mathematics anxiety or “statisticophobia” in varieties of majors, such as criminology, psychology, and business (Phillips & Phillips, 2016; Wilson, 2013). Furthermore, a study from Indonesia reveals that low student perception of online learning creates a challenge for lecturers to present effective learning material especially in accounting courses (Prasetio & Hariyani, 2021).

The challenges indeed arise for both students and lecturers in the flipped classroom. Nonetheless, literature reviewing the application of a flipped classroom in the context of higher education in the US reveals that the flipped classroom approach enables students, in economic education in particular, to

have a better learning performance because the activities are designed specifically for such courses (Yamarik, 2007, as cited in Roach, 2014). The activities in the flipped classroom also help the students to explore material effectively (Fauzan & Ngabut, 2018). Furthermore, accounting students in Australia perceive that watching recorded videos before class prepares them for in-class activities and boosts their confidence during exams (Williams, Horner, & Allen, 2019).

Several works of literature discuss students' perception of flipped classrooms. Bhutan reports that the flipped classroom allows seventh-grade students to collaborate with peers and develop their own English learning (Singay, 2020) and improve academic performance (Yamarik, 2007 as cited in Roach, 2014). Furthermore, a study about American economic students finds that flipped classroom activities activate students' tactile memory of what they learn beyond memorization (Roach, 2014).

The flipped classroom approach enables students to feel more connected to the class content (Doman & Webb, 2016; Roach, 2014). The approach gives students both more autonomy and more joy in learning and enables them to adjust their own learning pace (Doman & Webb, 2016; Fauzan & Ngabut, 2018). Meanwhile, an Indonesian study finds that watching online videos provides flexibility for watching anywhere (Zainuddin, 2017). From a greater perspective, the flipped classroom can spark students' love of educational technology.

According to previous studies in the overseas context, little attention has been paid to flipped classrooms in accounting education. Lo (2020) indicates that the recent literature on flipped classrooms focus on engineering, mathematics, medical, and nursing education. Moreover, Indonesian journals still lack articles investigating accounting students' perception of a statistics course with a flipped classroom approach. Apriska and Sugiman (2020) identify twenty articles examining a flipped classroom in the context of mathematics learning. However, only three investigate students' perception or attitudes toward the flipped classroom. Hence, more publication about students' perception of flipped classrooms is highly needed.

Therefore, in the present study, the researchers seek to investigate accounting students' perception in a statistics course regarding the effectiveness as well as to confirm the methods that promote engagement, increase satisfaction, and improve self-efficacy in an online mode of delivery with the flipped classroom approach. By conducting this study, we hope to inform and encourage future flipped classrooms in offline, online, and blended/hybrid modes in post-pandemic accounting education by validating the quality at the national and international levels.

The flipped classroom is a pedagogic approach that proposes three concepts of learning: before class, which prepares students before coming to the class through videos, reading assignments, and interactive online activities; during class, which applies what the students have learned through collaborative learning activities both with their peers and instructors; and after class, which includes activities that reflect the students' learning through feedback (Green, 2019).

A flipped classroom can be delivered completely online. Tang et al. (2020) reveal that a flipped classroom among engineering students in the US, conducted in an online mode, evokes a positive perception of it. The present study investigates a similar topic to this research. However, the researchers use the term *online flipped classroom* to specify the type of learning approach that is investigated in the present study. Thus, the present study needs some constructs to investigate students' perception of an online flipped classroom.

This study uses three constructs to investigate students' perception of an online flipped classroom: engagement (Martin & Bolliger, 2018), student satisfaction (Eom, Wen, & Ashill, 2006; Piccoli, Ahmad, & Ives, 2001), and self-efficacy (Pintrich, 2004). In the questionnaire, each construct is presented with 9, 17, and 3 items respectively. The distribution is skewed to engagement and student satisfaction with some considerations. The engagement construct, with the aforementioned amount of items, is adopted due to the essence of the flipped classroom; student-centered learning is highly emphasized. Furthermore, student engagement is also an indicator of successful learning (Gray & Diloreto, 2016). Hence, measuring up students' engagement in the class is crucial. Meanwhile, the student satisfaction has the most items in the questionnaire since the key stakeholder in the study is the student itself. Thus, the satisfaction with flipped classrooms needs to be investigated. The first construct examines engagement from all aspects involved in the classroom—for instance, students, lecturers, and contents of learning. The second examines the satisfaction of a flipped classroom in terms of technology, learner control, course content, interaction, and learning model. The third construct observes students' self-confidence in a flipped classroom. Thus, we believe that

engagement, satisfaction, and self-efficacy are critical and comprehensive constructs to facilitate a solid understanding of students' perspectives about the effectiveness of a flipped classroom.

Engagement is measured by interactions taking place in the classroom since *engagement* comes from *interaction*, and the two terms are interrelated (Martin & Bolliger, 2018). Furthermore, the present study adopts Moore's framework (1993) on interaction models to measure students' perception of the engagement in the online flipped classroom. Explanations on the models are written below:

1) Learner-to-Content Engagement

This type of engagement comes from an interaction between students and the course, which results in students being acknowledged with the course (Moore, 1993). This interaction focuses on the learning material with which the students engage.

2) Learner-to-Instructor Engagement

This engagement explains the interaction between students and their lecturers, including activities with the students to support their learning process, such as providing feedback, discussing a topic during in-class activities, and providing channels for students to communicate their difficulties in the course (Eom et al., 2006; Moore, 1989). Related to the learning material, video-based instruction also promotes learner-to-instructor engagement, since it is recorded by the lecturer her/himself.

3) Learner-to-Learner Engagement

This interaction happens between students and other students regardless of the instructor's presence (Moore, 1989). When the students engage with peers in online learning, they tend to have better learning achievements (Kurucay & Inan, 2017).

To investigate student satisfaction in the online flipped classroom, the present study adopts a framework from Piccoli, Ahmad, and Ives (2001) that proposes the design dimensions of virtual learning environment effectiveness. The dimensions consist of learning model, technology, learner control, content, and interaction. This framework also has potential indicators that could demonstrate student satisfaction, and their level of satisfaction can affect their learning outcomes in online learning (Eom et al., 2006). Explanations on the dimensions are written below:

1) Learning Model

One example of this dimension is student-centered learning, which in the present study is supported by flipped classrooms. The learning model influences how sessions are delivered, including the environment and the methodology.

2) Technology

This present study adopts a virtual learning environment, as the use of technology in education is absolute. Hence, this dimension reviews the quality and reliability of technology-based instruction.

3) Learner Control

Learner control examines whether students can choose any learning activities at their own pace, for instance, watching learning material and doing assignments.

4) Content

Content refers to the course content prepared by the lecturer, and it is basically related to the learning model that has been previously mentioned. Thus, content refers to the syllabus that is implemented according to the learning model used (Eom et al., 2006).

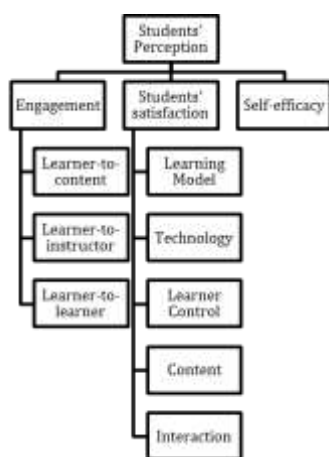
5) Interaction

This dimension observes the interactivity of interaction in the classroom. The interaction in the classroom needs to be examined for its quality and quantity (Eom et al., 2006; Piccoli et al., 2001).

To investigate students' confidence in their learning performance in the online flipped classroom, this study adopts a construct from Pintrich (2004) about self-efficacy. Self-efficacy is described as the confidence of a student—in this case, in achieving a learning goal. It involves students' judgment about their ability to achieve the goal; for example, whether or not they believe they will have a good grade in a certain course. This belief can reflect students' confidence in their ability not only to pass the course but also to earn a good grade (Pintrich, 2004).

## RESEARCH METHODS

This study employs a mixed method, as the researchers present a comprehensive analysis of the investigation of the students' perception of online flipped learning. Therefore, it uses quantitative and qualitative data collection to create the full analysis. The quantitative data in the questionnaires are supported by qualitative data from the interviews. The mixed method is applied to obtain rich data (Creswell & Clark, 2018). This study attempts to contribute to the development of teaching and learning research. One of the ways is by exploring several theories (see Picture 1) to bring novel insight that may be impactful for pedagogy.



Source: Modified from Moore (1993); Picolli, Ives, Ahmad (2001); Pintrich (2004)

**Picture 1. Research Framework**

As a whole, the data is analyzed using descriptive analytics. Descriptive analytics is a technique in displaying trends from the samples to show information regarding the data (Lawrence & Klimberg, 2015). This study attempts to contribute to the development of teaching and learning research. One of the ways is by exploring several theories (see Picture 1) to bring novel insight that may be impactful for pedagogy.

The participants in the study were 46 accounting students taking a statistics course—41 students in the 5th semester and 5 students in the 7th semester. The class was chosen since the course outline explicitly mentioned a flipped classroom as one of the methods in teaching and learning activities. Furthermore, these students were required to study the material uploaded in LMS before coming to class, which is a typical criterion of a flipped classroom. Moreover, the class met other criteria of an online flipped classroom since it has short video lectures, direct computer-based instructions, exercises, projects, discussions, and interactive group learning activities as mentioned in the literature (Fauzan & Ngabut, 2018; Lo, Hew, & Chen, 2017; Muhlisoh, Santihastuti, & Wahjuningsih, 2020; Wilson, 2013; Zainuddin, 2017).

To formulate a questionnaire examining students' perception of the flipped classroom, the researchers modified several indicators from several (Eom et al., 2006; Fauzan & Ngabut, 2018; Gray & Diloreto, 2016; Martin & Bolliger, 2018; Pintrich, 2004; Prasetyo & Hariyani, 2021; Prashar, 2015; Williams et al., 2019). The questionnaire was then arranged into three constructs: engagement, student satisfaction, and self-efficacy, all of which are detailed in the previous section. The questionnaire consisted of 29 statements, comprising 10 items of engagement, 16 items of student satisfaction, and 3 items of self-efficacy, all using a four-level Likert scale. Those items had been reviewed and validated by the lecturer and piloted.

The present study adopted the means and standard deviations as the procedure to describe Likert-scale data (Boone Jr. & Boone, 2012), whereby the mean was functioned to show the average value in the distribution. Meanwhile, the standard deviation complemented the mean to show the variation value of the average. Additionally, percentage was demonstrated to show the number of votes in the questionnaire.

Since the questionnaire was distributed before the students finished the project assignment as well as the final exam, the researchers conducted a semi-structured interview to obtain in-depth information that was not covered in the questionnaire. The questions in the interview session were adapted from Doman and Webb (2016). They were modified into the conceptual framework of the present study to keep the questions relevant. Those questions were addressed to five individuals who had participated in the questionnaire.

A representative of each grade, A, AB, B, BC, and C, were selected to be the informants in this session according to the range of grades that the class had. Furthermore, the researchers also considered their class participation from the highest teaching assignment score, which the participation score contained in it, under the assumption that the higher score of the teaching assignment was aligned with the higher participation score. The interview was done in the Zoom meeting on the 23rd and 24th of February 2022.

In analyzing the data from the interview, the present study followed the steps from Zainuddin (2017), which had been derived from the works of Patton (2002). First, the researchers transcribed the session from a Zoom recording into a print version to ease the processing of data. Second, the pattern of ideas by the respondents was categorized into groups of themes. Thirdly, the researchers presented and elaborated on the result of the themes descriptively to give adequate insight into the students' perception of the online flipped classroom, the result of which is aligned with that of the research by Nurfaiziyah and Aminin (2021).

## RESULTS AND DISCUSSION

After the pilot questionnaire, the researchers tested the first instrument, which was the questionnaire through a validity test and reliability test as summarized below.

**Table 1.**  
**Validity Test**

Question Item (#)	Pearson Correlation	Sig, (2-tailed)	Status
X	.441**	0,0022	Valid
X	.636**	0,0000	Valid
X	.504**	0,0004	Valid
X	.357*	0,0150	Valid
X	.366*	0,0124	Valid
X	.494**	0,0005	Valid
X	.623**	0,0000	Valid
X	.562**	0,0000	Valid
X	.678**	0,0000	Valid
Y	.552**	0,0001	Valid
Question Item (#)	Pearson Correlation	Sig, (2-tailed)	Status
Y	.631**	0,0000	Valid
Y	.679**	0,0000	Valid
Y	.588**	0,0000	Valid
Y	.391**	0,0072	Valid
Y	.682**	0,0000	Valid
Y	.755**	0,0000	Valid
Y	.754**	0,0000	Valid
Y	.478**	0,0008	Valid
Y	.557**	0,0001	Valid
Y	.649**	0,0000	Valid
Y	.675**	0,0000	Valid
Y	.764**	0,0000	Valid
Y	.740**	0,0000	Valid
Y	.623**	0,0000	Valid
Y	.515**	0,0002	Valid
Y	.715**	0,0000	Valid
Z	.633**	0,0000	Valid
Z	.737**	0,0000	Valid
Z	.631**	0,0000	Valid

Source: Data processed by researchers (2022)

Variable X in the table above presents engagement constructs, whereas Y presents student satisfaction and Z indicates self-efficacy. According to the results of the validity test conducted on the question items to 46 respondents, all of the question items used in the study were valid.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.935	29

Source: Data processed by researchers (2022)

**Picture 2. Reliability Test**

In addition, the reliability of the questionnaire for 29 items of statements had a Cronbach's Alpha >0.06. It can be concluded that the questionnaire was reliable to investigate the accounting students' perception of online flipped learning in a statistics course.

## Engagement

### Learner-to-Learner

This subsection had four items of statements that measure students' perception of their interaction with peers.

**Table 2.**  
**Learner-to-Learner**

Item	Sub-topic	M	SD	Percentage (%)	Tendency
1	Presentation & discussion activities	3.22	0.76	84.78	Agree
2	Giving opinions in the breakout room and main room	2.96	0.73	76.09	Agree
3	Working collaboratively for assignment/project	3.52	0.66	95.65	Agree
4	Giving feedback to peers	2.46	0.75	60.87	Disagree

Source: Data processed by researchers (2022)

The result of the interview was aligned with the result of the questionnaire in terms of discussion and collaboration. The interaction between peers constantly and regularly happened in every session of the class, and this was a quality interaction because it helped students to understand the lesson. When completing an assignment in the breakout room, if one of them did not understand, she/he would ask her/his peers for help through a discussion, even after the class, via both texts and calls. Interestingly, one of the informants, who received BC, revealed that quality interaction depends on peers. He added that if his peers paid attention to the learning, it would be helpful, and vice versa.

Small classes were preferable to large classes in terms of giving opinions. Students felt less comfortable speaking up in the main room, and this could be due to the scale of the classroom. The numbers of students make them feel judged when giving opinions (Wilsman, 2013). In contrast, the breakout room created a sense of belonging. Moreover, the method of discussion and other collaborative activities in the work of Martin and Bolliger (2018) were also done in the breakout room. Most students agreed that the method should be done in the breakout room, and this can be seen through the high vote in number 3. Thus, a small group made the students feels more comfortable expressing opinions in front of their peers. In support of this claim, Lo et al. (2017) found that creating small groups is an effective way to facilitate learning and foster engagement among students. In addition, the results support Britton's Collaborative Learning theory in which students learn better through cooperation and communication with peers (Johnson & Johnson, 2018).

Conversely, number 4 had the lowest vote, for which the majority of students tended to disagree about giving their peers feedback. Peer feedback as meant in this study is a peer review during which students were required to assess their peers' performance as in a presentation. The interview revealed that there were three cohorts who received peer feedback in different ways. The first was through Google Forms in which they assessed their group peers after finishing the workgroup or presentation.

The second was through discussion in the form of reminding peers when they made mistakes. The third cohort never experienced peer feedback in the form of review. The third cohort was expected to be the rationale behind the lowest vote in number 4. In that respect, giving feedback among peers was present, yet the lecturer used another form of peer feedback in the classroom. Overall, the students' perception of the feedback given by peers through Google Forms was positive.

### Learner-to-Content

This sub-section contained an item to elicit students' confirmation regarding whether they could apply the learning material to a realistic scenario, such as assignments, reports, and projects.

**Table 3.**  
**Learner-to-Content**

Item	Sub-topic	M	SD	Percentage (%)	Tendency
5	Applying learning materials to realistic scenarios.	3.11	0.60	86.96	Agree

Source: Data processed by researchers (2022)

Students perceived that the learning material, particularly the videos made by the lecturer, did help in their formative and summative assessment. Roach (2014) and Bui (2021) confirmed that lecturer video material is useful and effective during the pandemic. Furthermore, Martin and Bolliger (2018) found that lecturer video material is a preferred tool in online learning. This result is aligned with Hall and DuFrene (2015), whose participants review the learning material, for instance a video, to strengthen their understanding. Videos presented benefits for some students according to their learning styles. Compared to reading, watching videos was easier for students to understand. Lecturer video materials can serve as a new method in promoting learner-to-content engagement. Additionally, the results support Constructivism Learning theory where students' knowledge and understanding of the world are constructed through experience (Elliott et al., 2000); and in this case, the experience is given through the learning materials.

### Learner-to-Instructor

There were four items to gauge students' perception of experiencing a positive interaction with their lecturer.

**Table 4.**  
**Learner-to-Instructor**

Item	Sub-topic	M	SD	Percentage (%)	Tendency
6	Calling students by name.	3.00	0.79	73.91	Agree
7	Providing rubric/key answers	3.02	0.75	60.87	Agree
8	Giving feedback	3.02	0.75	73.91	Agree
9	Providing forums for asking questions	3.52	0.59	95.65	Agree

Source: Data processed by researchers (2022)

The interview revealed that the lecturers gave feedback verbally in the breakout room. However, the lecturers sometimes gave written feedback through a comment on the PowerPoint in which they presented their work or a score with notes. Regarding which kinds of feedback the students preferred, two out of five students reported that immediate feedback is their preference. One respondent said that it benefited students in the manner of time, so elements to be improved could be illuminated directly. Furthermore, the lecturer still allowed some time for revision or improvement before the final submission.

Furthermore, the high percentage of item 9 was related to the work of Martin and Bolliger (2018). The students reported that the breakout room was an active forum provided by the lecturer instead of a forum in the LMS. One said that the lecturer sometimes shared the screen directly and explained again the points that were not yet understood. This indicated that the breakout room was a forum for students' Q&A sessions and feedback. Some students revealed difficulties with breakout rooms. One reported that, since there were many breakout rooms for the lecturer to visit, the students needed to

wait their turn. Another perceived that the time spent waiting for the class to end indicated ineffective time allocation. Despite these issues, the lecturer maintained interaction with students by establishing a communication channel to help students when they struggled.

Overall, the engagement construct has 3 subsections: learner-to-learner, learner-to-content, and learner-to-instructor. According to the questionnaire, 67.34% ( $M= 3.07$ ,  $SD= 0.34$ ) of students tended to agree with the indicators that supported the interaction that happened in the online flipped classroom. Furthermore, the result of the interview seemed aligned with the questionnaire which can be concluded that the overall interaction of the three constructs was positive.

## Student Satisfaction

### Technology

Two items were arranged to examine whether the technology had been run well in terms of accessibility and quality in the online flipped classroom.

**Table 5.**  
**Technology**

Item	Sub-topic	M	SD	Percentage (%)	Tendency
10	Accessibility	3.65	0.53	97.83	Agree
11	Quality	3.37	0.64	91.30	Agree

Source: Data processed by researchers (2022)

The data conflicts with the findings of Prasetio and Hariyani (2021). The students had no problems with the technology used. The interview results revealed two themes that encourage learning. The students mostly used Google applications, such as Docs, Sheets, and Meet to complete group assignments. To communicate with others, they used Line. The whiteboard, raise hand, and breakout room features were advantageous for this online flipped learning, especially the breakout room, which was the students' favorite feature in Zoom. This finding is related to Rahayu (2020), in which the whiteboard and breakout rooms facilitated students' communication and study and enhanced learning and engagement. Overall, the utilization of technology for learning statistics in the online flipped classroom was optimum.

### Learner Control

Learner control was presented in two numbers to investigate whether students could adjust their learning time and pace in the online flipped classroom.

**Table 6.**  
**Learner Control**

Item	Sub-topic	M	SD	Percentage (%)	Tendency
12	Adjusting learning time and pace before class	3.02	0.88	73.91	Agree
13	Adjusting learning time and pace to study/do an assignment	3.28	0.66	93.48	Agree

Source: Data processed by researchers (2022)

The before-class activity encouraged students to take responsibility for their learning progress. The students' interview responses indicated that they enjoyed the greater autonomy and flexibility with flipped learning. Tsai (2019) mentioned that a flexible learning environment is one of the factors that promotes learning autonomy in a flipped classroom. Doman and Webb (2016) found that before-class material provided by or characterized in flipped classrooms gives students freedom to learn according to their schedule and improves learner control. Moreover, the results support the Blended Learning theory where students are given flexibility in their learning because of technology (Müller & Mildemberger, 2021); and in this case, it gives them the ability to do the before-class activity at their convenience.

One informant who received a C for the final grade admitted to watching the before-class video sometimes just before the class began so his memory remained fresh. This enabled the student to



adjust his pace in the online flipped classroom. Regardless of the negative or positive side of the act, the student accommodated his learning capability in respect of the range score he received. A peer in the same score range acknowledged that studying before class, discussing concepts in class, and doing assignments made the course effective and efficient. In other words, the online flipped classroom provided students autonomy in their learning.

### Course Content

The course content consisted of 5 items for numbers 14 to 18 that were made for gauging learning material provided in the online flipped classroom that had been supporting students in their learning progress.

**Table 7.**  
**Course Content**

Item	Sub-topic	M	SD	Percentage (%)	Tendency
14	LMS and Zoom	3.46	0.69	89.13	Agree
15	A guide for the course	3.39	0.65	91.30	Agree
16	Structure of learning material	3.30	0.59	93.48	Agree
17	Assignments for students	3.02	0.75	73.91	Agree
18	Before-class learning material	3.52	0.59	95.65	Agree

Source: Data processed by researchers (2022)

Collecting further information, the interview results confirmed that LMS and Zoom supported the learning. However, forum discussion was one feature in the LMS that was passively used well in the course. One informant said that it was only used twice, and another said that she had never been involved in it. In terms of assignment, the data showed a positive result that they were able to understand clearly the practice of calculation, which is in contrast with the finding of Prasetio and Hariyani (2021). It resulted mostly from the video that helps students in daily practice, even though the informants who received AB and BC, said that they encountered unfamiliar terms without further explanation at times. Furthermore, a student who received a B grade mentioned that there was part of the material that was missed. This caused difficulties in students' understanding among 26.09% of the participants.

In preparing students through the before-class learning material, the data showed a strong perception of the usefulness of the material. Williams et al. (2019) also reported that videos made by the lecturer prepared the students during class activities. However, the material was released not long before the class began, which made studying in a short period of time difficult. The limited time to watch the material made students unprepared, as clarified by the informants who received A and AB. Hence, this perception might be the grounds for 4.35% of students who tended to disagree with the indicators.

### Interaction

The interaction subsection differed from the engagement which had a connecting line. This construct is concerned with the quality and quantity of the interaction from the previous construct. This subsection consisted of numbers 19 to 23.

**Table 8.**  
**Interaction**

Item	Sub-topic	M	SD	Percentage (%)	Tendency
19	Frequent interactions with the lecturer	2.87	0.83	36.04	Disagree
20	Quality feedback	3.07	0.80	76.09	Agree
21	The lecturer being responsive	3.37	0.64	91.30	Agree
22	Students' comfort in discussion	3.17	0.71	82.61	Agree
23	Students' enthusiasm about studying the before-class material	2.72	0.81	63.04	Agree

Source: Data processed by researchers (2022)

According to the interview, students had many chances to interact with the lecturer as in discussions about the difficulties that the students experienced in learning. However, one informant

felt less engaged due to the autonomy that the flipped classroom gave, resulting in independent learning. This informant was expected to be the representative of that number.

Number 20 confirmed that the lecturer gave quality feedback. In the interview, students said that the feedback was helpful in improving their work, as they know which items they did wrong. Both the quality and quantity of the lecturer's feedback was sufficient. The informant reported that feedback occurred, "almost every session." Since the feedback was frequent, the Q&A sessions and interaction among peers were also frequent. This finding produces positive responses to number 21 that the lecturer was responsive to the students' questions.

Meanwhile, item 22 conveyed that the students felt comfortable during the discussion, whereas a lower number demonstrated that they were enthusiastic about studying the before-class learning material confirmed in item 23, which was given further into the interview session. The students' self-discipline in learning was indeed required in the online flipped classroom. Students who were able to be at pace would see it as an obligation, not a burden, as one of the informants reported in the interview.

In contrast, other students, particularly those who received BC and C in the final grade, who procrastinated watching the video or even missed it due to the failure to perform good time management. As a result, these students were overwhelmed while the discussion was ongoing in the classroom. The same issue was also identified by Hall and DuFrene (2015). In brief, these two informants could be representative of 36.06% of students who disagreed and strongly disagreed with learning enthusiastically due to procrastination.

In instilling self-discipline, time management was the biggest challenge in keeping up with the online flipped classroom. He et al. (2016) agreed that time management still presents a challenge in flipped classrooms due to procrastination. Furthermore, Ahmad Uzir et al. (2020) examined time management in flipped classrooms, and both studies demonstrated concern about time management. During the interview, two informants who received AB and BC complained about it. The informant receiving BC said that setting time to study became harder when other courses had deadlines as well, resulting in procrastination. Meanwhile, the informant who received AB also complained about time management. Thus, the informants' time management was an issue regardless of whether their scores were high or low.

Additionally, students were also asked about their preferences of type of classroom: flipped or conventional. Most of the informants preferred the flipped classroom if the class was run online. Some said that student-centered learning helped them to prepare before class and to prevent a tedious class atmosphere. Another added that the online flipped classroom can be enjoyed more with snacking and playing on the phone during class. Nevertheless, the interactions that happened between students and the lecturer as well as among students in the online flipped classroom were positive resulting from the teaching and learning activities in the classroom.

### Learning Model

The learning model subsection examined students' perceptions of the learning methodology that the lecturer used to create an effective online flipped classroom.

**Table 9.**  
**Learning Model**

Item	Sub-topic	M	SD	Percentage (%)	Tendency
24	Becoming more participatory	2.83	0.77	65.22	Agree
25	Becoming more adaptive to technology	3.30	0.66	93.48	Agree
26	Becoming more active	2.87	0.81	69.57	Agree

Source: Data processed by researchers (2022)

In terms of becoming more participatory and active in class, the difference between the results of the questionnaire was insignificant. Williams et al. (2019) indicate similarities with the present study. The student responses demonstrated by the data were neutral, whereas they previously tended to be positive. This led to the conclusion that flipped classrooms tended to be less active. The results of the interview exhibited a theme that referred to the attitude toward the flipped classroom.

On one hand, the informants were positive toward the flipped classroom since it motivated them to be prepared and know what material would be learned in the class. Furthermore, the class was also exciting compared to the conventional class because the class was not teacher centered. On the other hand, some students seemed unmotivated. Again, this might happen due to the high self-discipline that was required in the flipped classroom when the students were not able to keep pace.

The data demonstrated a satisfying result for the indicator of being adaptive to the technology. In the interview, an informant mentioned her attitude toward this technology in the flipped classroom, similar to the finding of Singay (2020). Moreover, the author reported that, due to the student's comfort with using technology, more technological use is encouraged in flipped classrooms. The variety of technology used in this course trained the students to be adaptive to technology.

In short, technology, learner control, course content, interaction, and learning model were sub-sections contained in the student satisfaction construct. The result of the questionnaire showed that 82.62% ( $M=3.20$ ,  $SD= 0.27$ ) of students agreed and strongly agreed with the indicators that student satisfaction increases in the online flipped classroom. The interview also exposed the supportive response behind the data shown in the questionnaire. Therefore, it can be deciphered that an online flipped classroom in a statistics course could encourage learning methodology to support accounting students' development.

### Self-Efficacy

Finally, self-efficacy was the last construct in the questionnaire that was intended to measure students' perception of the level of confidence students had in terms of reaching an outstanding learning achievement.

**Table 10.**  
**Self-Efficacy**

Item	Sub-topic	M	SD	Percentage (%)	Tendency
27	Understood about learning material taught	3.04	0.67	80.4	Agree
28	Capability to do project assignments/final examinations	2.87	0.65	71.7	Agree
29	Possessing a very good grade	2.85	0.79	73.9	Agree

Source: Data processed by researchers (2022)

The interview revealed two spectrums that represented students' self-efficacy. The first one came from A and AB, who were confident that they would have a very good grade due to the relevance of the summative assessment with the material or the practice, which was aligned with number 27. Furthermore, the quantity of the practice was sufficient to motivate the informants to be prepared. Meanwhile, the second spectrum came from B, BC, and C, who believed that they would pass the course regardless of the score. Aligned with Xiu and Thompson (2020), self-efficacy predicts students' performance in this case. This result indicated that the flipped classroom seemed to give hope to the student that they would not fail the course.

Looking at the final grade of the students in this course, the results demonstrated the opposite. Almost 50% of students received an A, and 25% of students received an AB. The result of the interview was in contrast to the students' actual grades. The students completed the questionnaire before the final grade was released. There might be a chance that students were being humble about having very good grades at the end of the course. For instance, the informant who received a B seemed to show the same attitude in the interview, whose session was completed after the final grade was released. Nevertheless, the students' performance result was high and it is aligned with Panicker (2018). The author also found that students' self-efficacy in understanding the material and key concepts was improved. This finding confirmed the data in number 27.

In general, self-efficacy constructs showed 75.33% ( $M=2.92$ ,  $SD= 0.11$ ) of students who agreed or strongly agreed with the statements in the questionnaire that demonstrate high self-efficacy in achieving an excellent result at the end of the course. Due to the data shown, the self-efficacy tended to be low, whereas the final grades did not show the same. This finding is related to Eom et al. (2006). The authors found that self-efficacy did not have a significant relationship with how the students feel about the amount of learning they have and the quality of learning they experience. However, their attitude toward self-assessment might affect this phenomenon.

## **How to Flip Better: Students' Perspectives**

Despite the three constructs, this subsection contains additional information that was collected in the interview. The questions were intended to gain information for a better flipped classroom in the future.

As previously discussed, time allocation in the breakout room and time consistency in uploading video were weaknesses to be addressed. Furthermore, the students mentioned the duration of the video as an obstacle. The informants who received BC and C clarified that they preferred to have a video of shorter duration. Hall and DuFrene (2015) also mentioned this issue. One of the informants mentioned that the duration varied between 20 and 50 minutes. However, he preferred videos on the lower range because the longer videos made him unmotivated to watch. This might also affect students' enthusiasm for watching the before-class video, as discussed in the previous subsections. Meanwhile, the informants who received A, B, and BC explained that the detail followed by a simplified explanation should be improved due to the clarity and familiarity of the material. The informant who received AB recommended that a brief explanation from the lecturer in the main room should be provided before entering the breakout room. The informant added that the presence of the summary depended on the students who asked; in fact, the students barely asked questions in the main room.

Researchers also asked about their recommended courses to be applied in the flipped classroom. As a result, the recommendations can be grouped into three categories. The first one is complex courses such as accounting and tax from informants who received A and BC. Specifically in accounting, the flipped classroom would help the students to learn due to the before-class learning material such as videos and PPTs. The second one is theoretical courses, including information systems as in AIS and MIS and auditing. Due to the recommendation, it seemed that the theoretical courses needed more explanation and could be explored through the flipped classroom. The third one was courses that needed much more practice. The informants who received BC and C mentioned tax, financial accounting, and advanced accounting. The informant who received C explained that in-class time would be efficient for discussing the material since students had studied before class.

## **CONCLUSION**

The present study adopted three constructs: engagement, student satisfaction, and self-efficacy. Of the three constructs, engagement and student satisfaction demonstrated a positive result. It was evidenced by the data that the mean scores of both were above 3, i.e., 3.07 and 3.20 respectively. Overall, the students experienced meaningful engagement with peers, learning, and the lecturer. As mentioned, students found engagement helpful for their learning in the online flipped classroom. Furthermore, the data demonstrated in the student satisfaction confirmed that aspects such as technology, learner control, course content, interaction, and learning mode, supported students in the online flipped classroom. Despite certain difficulties that the students encountered, they faced no significant problems. On the contrary, self-efficacy showed a lower mean of 2.92. Even though the interview explains the rationale behind the data, the actual condition that can be seen from the students' grades remained in contrast. Thus, accounting students perceived that the statistics course in the online flipped classroom had run effectively during the pandemic.

Theoretically, this study provides novel insight into the pedagogy of running an effective flipped classroom. Videos prepared and uploaded by the lecturer were helpful for the students as they could study at their own time, place, and pace. Thus, it can exercise their autonomy as well as promote student satisfaction. Furthermore, the relevancy of the material with the summative assessment helps students improve their self-efficacy. Meanwhile, small group learning in the breakout rooms can enable students to engage more with peers. The students confirmed that this feature facilitated quality interactions, either with peers or with the lecturer in which this method can foster engagement. Therefore, the lecturer's video material, the relevance of the learning material to the assessment, and Zoom breakout rooms are the methods that can foster engagement, promote student satisfaction, and improve self-efficacy in the online flipped statistics course. In addition, this study reports that flipped classrooms successfully confirm three learning theories through its practice, including Collaborative,

Constructivism, and Blended Learning theories. However, further studies need to be done by examining each theory with Flipped Classroom because this study is not thoroughly focused on one Learning theory.

Practically, the finding of this study is expected to be used in daily teaching due to ideal criteria in pedagogy. The flipped classroom as a teaching method can help educators comply with both national and international accreditation systems, especially in terms of learning process and teaching effectiveness. At the national level, the learning process characteristics of the online flipped classroom are aligned with the requirement of learning process characteristics in the Regulation of Ministry of Education and Culture (MoEC) of the Republic of Indonesia No. 3/2020 regarding the National Standard of Higher Education, particularly article 11. Flipped classrooms can help to ensure that the learning process is interactive, thematic, effective, collaborative, and student-centered. As mentioned, the engagement of the student is highly emphasized so that interaction between students and lecturers consistently happens which is related to interactive learning characteristics. The thematic learning characteristic describes a realistic scenario applied in the learning activity and is approved to be done in this study, as seen from the questionnaire results. Due to the score distribution, students have successfully reached the learning outcome as included in the effective learning characteristic. Furthermore, the collaborative element is also implicitly contained in flipped classrooms due to the interaction from all aspects of the class as in learning content, students, and the teacher. Student-centered is the method in flipped classrooms, so that learner independence of learning is encouraged. Flipped classrooms also help schools comply with AACSB Standard four (4) point four (4) about curriculum that displays a quality of engagement in the classroom between students and also the teacher; and Standard seven (7) point four (4) about teaching effectiveness and impact through student satisfaction and success (AACSB, 2021). Flipped classrooms increase accounting students' satisfaction and success in the online statistics course, as evident in the results of the questionnaire and the interview.

The points above show that flipped classrooms are effective in helping students to learn during the pandemic, specifically in online mode. Moreover, some students preferred to have the online flipped classroom as their learning approach because they had a better learning experience. From the analysis, it was evident that students perceived that online flipped classrooms help them adapt to technology and their own learning autonomy. Furthermore, the flipped classroom contains five characteristics of an ideal learning process according to the national standards of higher education in Indonesia. Hence, the benefits of the flipped classroom identified in the statistics course are evident to promote flipped classrooms in the context of online, blended, and/or even offline learning for post-pandemic use.

The present study used a limited sample, especially in the interview session, so the findings of the study have limitations in generalizing the result. In other words, the result can only be applied in a small-scale context. Therefore, a large sample could help this research to be more general in context, as a bigger sample could lead to a wide range of responses that could address the rationale behind the unrelated lower mean of self-efficacy with the actual result of students' performance. Furthermore, future research could replicate this study to other disciplines, not limited to statistics courses in an economics-related field.

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