



The Relation of the Flipped Classroom, Attitude, Participation and Satisfaction to the Academic Performance of Students Learning English Grammar in VSBO Education in Curaçao

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Abstract

The aim of this study was to determine whether the academic performance of students learning English grammar improves by using the flipped model and whether there is a relationship with their language attitude to English, their participation, and their level of satisfaction. The research was conducted in a test group (n=60) at a school for secondary education (VSBO=preparatory secondary vocational education) in Curaçao. In this empirical study, a flipped classroom experiment was performed, in which a grammar test ($\alpha=0.87$; $\alpha=0.90$) was administered at two measurement moments, before and after the experiment. Using questionnaires, data were also collected for the variables, language attitude ($\alpha=0.76$), participation ($\alpha=0.79$) and satisfaction ($\alpha=0.81$), whereby the instruments used were found to be reliable. The results of further analysis of the data with SPSS showed that students who were taught in a flipped classroom performed better on the grammar test than in a traditional setting. The difference between the performance scores on the grammar test before the experiment (MM1) and the second measurement moment (MM2) of 4.14% turned out to be significant ($p < .001$). For the scores on the grammar test (MM2) after the intervention with flipped classroom, a positive relationship was found with the attitude of the students toward English ($r=.35^{**}$) and their satisfaction with the experiment ($r=.37^{**}$) with the flipped classroom approach, where these variables both together represent the flipped class. There was a weak positive correlation ($r=.17$) for the degree of participation, which was not significant. The results on the last grammar test (MM2) appeared to be particularly strongly related to attitude ($r=.35$), satisfaction ($r=.37$) and age ($r=-.30$). Finally, based on basic principles, the results of the research have been incorporated into a visual model to gain insight into possible causal indications.

Key words: Curaçao, secondary education, flipped classroom, grammar, language attitude, participation, satisfaction

Preface

This thesis is the final composition of my Master of Education in English study at the University of Curaçao. The base of this research is founded on my fondness of integrating technology in the classroom, hence the reason for the use of the flipped classroom approach. The intent of this thesis is to establish how the flipped classroom, attitude, satisfaction, and participation are related to the academic performance of students learning English grammar in VSBO education. In essence, this research area has been chosen, as it is contemporary and will surely provide valuable insights that focuses on local students.

Truthfully, I could not have attained my current level of success without the unwavering support of my loved ones when I needed it the most. This also brings me to thank Miss Janneke Beerman MA and prof. Ronald Severing who have guided me ceaselessly every step of the way; your input and efforts are immensely appreciated. Finally, I very much appreciate the participation of the school management, the teachers and all the students who were in the experiment. I am very grateful to them, for their friendly cooperation made this research possible.

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Chapter 1: Introduction

The purpose of this chapter is to gather essential information along with crucial comprehension on the research topic (1.1), namely the relation of the flipped class to language learning in secondary school students, which is described in the research objective (1.2). In addition, it is also important to examine in previous research what the factors are that are also important for successful performance in language. Overall, this chapter provides an overview of the results of the literature review (1.3) on these topics and the relevant outcomes reported in reliable sources.

1.1 Research Topic

The last twenty years have been significant for the technological transition within the educational environment. Caner (2012) suggests that especially the higher education has seen the convergence of technological resources as well as novel pedagogies emerging. As a result, the technological advances paved a way for the implementation of a more efficient and effective learning environment, such as blended learning (Caner, 2012). Moreover, blended learning has been around for approximately 30 years and has been developing itself ever since (Pappas, 2015). Today, blended learning is becoming increasingly popular due to the rapidly changing technology along with schools realizing the benefits of the blended learning approach (Pappas, 2015). Unsurprisingly, there are many definitions of blended learning. Nevertheless, this research bases itself on the following definition of Garrison and Kanuka (2004), which defines blended learning as “the thoughtful integration of classroom face-to-face learning experiences with online learning experiences” (p.96). In essence, the combination of face-to-face learning and online learning is indispensable in a blended classroom.

In addition, there are various types of blended classrooms, since several blended pedagogical approaches can be applied. However, this research makes use of a flipped classroom approach for the experiment. A flipped classroom is defined, as “a pedagogical approach, which means that activities that have traditionally taken place inside the classroom take place outside the classroom and vice versa”, as per Uzunboylu and Karagozlu (2015, p. 1). Clearly, this bold approach is fundamentally, the opposite of the current traditional pedagogical approach seen throughout Curaçao’s educational system. Consequently, this new educational experience makes learning fun, exciting, accessible, and flexible for students. In short, blended learning is proven to transform traditional classrooms into tech-friendly 21st century classrooms. In addition, Means et al. (2009) claims that “instruction combining online and face-to-face elements had a larger advantage relative to purely face-to-face instruction than did purely online instruction” (p. 15). Therefore, this research aims to put the assertions of Means et al. (2009) to the test in an experiment. Furthermore, seeing that the integration of the flipped classroom has been proven to provide positive results, it is worth noting that these specifically affect students’ position. For this reason, this research also extends its focus on several variables that may affect students’ performance in a flipped classroom, such as attitude, satisfaction and participation. According to previous research, the flipped classroom approach affects the variables in question in a positive manner. Thus, the researcher intends to collect valuable attitude, satisfaction and participation data to determine to what extent their roles are significant in a flipped classroom.

1.2 Research Objective

The researcher seeks to determine the influence that the flipped classroom approach and other predicting variables have on the academic performance of students learning English grammar in VSBO education in Curaçao. To be precise, the predicting variables in question are the students' attitude, participation, and satisfaction. Furthermore, the data of the initial grammar test will be used to compare to the final grammar comprehension of students at the end of the experiment involving the full integration of the flipped classroom. The quantitative data of the students' attitude, satisfaction and participation will all be collected by means of a standardized survey at the end of the experiment following the summative grammar test. With this in mind, this research is intended to uncover how the flipped classroom, student attitude, satisfaction and participation is related to the academic performance. It is also worth noting that it is key to establish connections between the variables so as to obtain a more in-depth understanding of how the variables are interrelated.

1.3 Literature Review

In this section, the following topics will be discussed:

- Blended Learning Definition (1.3.1)
- The flipped Classroom Approach (1.3.2)
- The Roles of the Teacher and Students in a Flipped Classroom (1.3.3)
- Benefits and Challenges of a Flipped Classroom (1.3.4)
- Teaching Grammar in a Flipped Classroom (1.3.5)
- Students' Attitude (1.3.6)
- Students' Participation/Engagement in a Flipped Classroom (1.3.7)
- Satisfaction of Students Taught in a Flipped Classroom (1.3.8)

Essentially, the literary review of this research delves into various topics significant to the research itself. Without a doubt, it is imperative to conduct literary research in order to be informed well along with being thoroughly prepared for the experiment to take place. On the whole, the literary review is the culmination of all significant topics related to this research, which also forms a strong base for the experiment. As mentioned earlier, blended learning is a new approach to teaching in a 21st Century classroom as opposed to the conventional method that has been in place for years. As a result, the traditional classroom has been subject to change for the past three decades (Pappas, 2015). Seeing that blended learning is a novel teaching method, its definition differs per academic. Therefore, it is significant to state that this research bases itself on the following definition of Garrison and Kanuka (2004): “blended learning is the thoughtful integration of classroom face-to-face learning experiences with online learning experiences” (p. 96). For all intents and purposes, in-class learning activities coupled with online learning experiences are imperative to constitute a proficient blended classroom. In this day and age, blended learning is becoming increasingly popular due to the rapidly changing technology along with schools realizing the benefits of the blended learning approach (Pappas, 2015). Evidently, there are different blended methods, whereas this research will make use of a flipped classroom. In this case, the flipped classroom was invented back in 2007 when two high school teachers decided to approach their classes differently by using a tool to record their PowerPoints and flip the traditional structure of their classroom

(Uzunboylu & Karagozlu, 2015). Despite the flipped classroom being a rather new approach to teaching, it has significantly grown in popularity in education around the world. Moreover, the quality of education has seen significant improvement since the integration of technology-based instruction combined with face-to-face learning (Pappas, 2015). In doing so, traditional classrooms have been transformed into tech-friendly 21st Century classrooms. Thus, the learning experience is considered to be more fun, exciting, accessible along with flexible for students. In addition to that, according to Garrison and Kanuka (2004), there is substantial evidence proving that internet information as well as communication technologies are influencing society on a large scale. As a result, there is a great possibility of it defining transformative advances within the higher education during the 21st Century.

1.3.1 Blended Learning Definition

Blended learning is considered to be a relatively new method of teaching as opposed to other methods that have been around for much longer (Pappas, 2015). Over the last thirty years, blended learning has become increasingly popular and has been developing itself ever since. In spite of the novelty of the term ‘blended learning’, it is recurrently used among researchers. Notwithstanding the frequent use of the term, what it truly means remains somewhat vague (Oliver & Trigwell, 2005). In other words, there are various definitions used for the term ‘blended learning’. It is important to note that this research bases itself on the definition of Garrison and Kanuka (2004) which defines blended learning as “the thoughtful integration of classroom face-to-face learning experiences with online learning experiences” (p. 96). According to Google Scholar in 2018, this definition has been cited 3,116 times (Hratinski, 2019). It is evident that the definition includes two key aspects, which are face-to-face learning and online learning. Consequently, one might deduce that these two aspects are significant when defining blended learning. Finally, blended learning consists of many subcategories coupled with a diverse set of conceptualizations, of which the chief one will be elaborated on hereafter.

1.3.2 The Flipped Classroom Approach

As previously mentioned, blended learning consists of several teaching methods, of which the flipped classroom approach is of importance here (TeachThought Staff, 2020). Interestingly enough, the term ‘flipped classroom’ has synonymous terms that has been used in various studies over time (Hung, 2015). First of all, Bergmann and Sams (2012) make use of the term ‘flipped classroom’. Secondly, Lage and Platt (2000) use the term ‘inverted classroom’, while ‘just-in-time teaching’ is used by Novak (2011). Finally, Barker et al. (2013), utilizes ‘inverted learning’. All the above-mentioned terms are applied to refer to the same terms (Uzunboylu and Karagozlu, 2015). Notably, all terms refer to the same meaning. It is important to note that this thesis focuses on the flipped classroom approach. A flipped classroom is defined as “a pedagogical approach, which means that activities that have traditionally taken place inside the classroom take place outside the classroom and vice versa”, according to Uzunboylu and Karagozlu (2015, p. 1). Simply put, Bergmann et al. (2011) describe the flipped classroom as substituting direct instruction with videos the students view outside of the classroom along with focusing on vital learning activities inside the classroom. Essentially, students acquire initial exposure to the new subject material outside of the classroom. The first exposure usually takes place via reading material or instructional videos posted online that students are able to access at any given moment.

Subsequently, the time in the classroom is utilized to integrate that knowledge by means of problem-solving assignments, discussion, debates, and so on (Brame, 2020). The instruction outside of the classroom is typically provided through teachers making recordings and narrating screen recordings of the class material or collecting video lessons from reliable online sources (Hamdan et al., 2013). In a nutshell, students acquire the theory outside of the classroom and subsequently partake in extensive learning activities inside the classroom.

1.3.3 The Roles of the Teacher and Students in a Flipped Classroom

It goes without saying that if the classroom process is flipped, the roles of the teacher and students are subject to change as well. Markedly, the role of the teacher in a flipped classroom is other than that of a teacher in a traditional classroom. Meaning, the teacher does not provide direct instruction in the classroom; the teacher becomes a facilitator who supplies class material online, designs learning activities along with providing a safe learning environment during the face-to-face learning (Carnevale, n.d.). As a result, this increases the interaction as well as the personalized contact between teachers and students (Uzunboylu and Karagozlu, 2015, p. 143). In short, the teacher is in charge of gathering and supplying accurate content to her students as well as putting together thoughtful learning exercises for in-class activities. On the other hand, students in a flipped classroom take on a different role, too. The responsibility to learn falls on the students, which makes them the leaders of their learning process. Thus, students are able to work and learn at their own pace, as they are able to access class materials online at any given moment that suits them best. Subsequently, the face-to-face learning in class is used to delve deeper into the subject (Carnevale, n.d.). To put it briefly, students become the directors of their learning outside the classroom then apply this newly acquired knowledge in learning activities in the classroom. Evidently, this process is vital to meet the different learning styles of students, for the disparity between learning styles and personality types have an imperative role on the learning process of a student. Fortunately, this cancels out the possibility of a reduction of interest in the subject matter due to the incompatibility of a teacher's teaching style and a student's learning style (Uzunboylu and Karagozlu, 2015). Seeing that the students' learning lies in their own hands, students may be more likely to be involved in this learning process, as they decide what suits them best. In other words, the students attend to their learning, which allows for more contact time between the teacher and her students. Baker (2000, p. 9) describes the role of a teacher as the "guide on the side" as oppose to the traditional "sage on the stage". Moreover, Pinnelli and Fiorucci (2015) claim that the flipped classroom approach endorses democratization of the learning process, since it is the students' responsibility to view the videos prior to coming to class. Consequently, the students participate in collaborative as well as cooperative activities in class so as to share their opinions and gain more knowledge on the matter (Subramaniam, 2016). All in all, the flipped classroom approach enhances the educational experience by making learning flexible to the needs of the students along with the teacher providing collaborative, accurate learning activities in class.

1.3.4 Benefits and Challenges of a Flipped Classroom

Certainly, the integration of the flipped classroom provides many benefits for both students and teachers (Shi-Chun et al., 2014). First of all, students learn at their own pace, contrary to the traditional classroom where students are required to apprehend what is being taught in that exact moment. The latter also results in students missing vital information, for they were trying to

transcribe the teacher's words in that moment. However, in a flipped classroom, students control their learning, as they are able to watch, rewind, and fast-forward the instructional videos as they see fit (Shi-Chun et al., 2014). This also provides the students, for instance Spanish-speaking students, who may need additional explanation to re-watch the video as many times necessary. Secondly, there is more space for collaborative learning activities among students (CPS, 2020). Teachers are able to provide students with more group assignments so as to participate in learning activities, discussions and peer reviewing. Simultaneously, collaborative learning activities encourage social interaction among students (Shi-Chun et al., 2014). What is more, students learn how to work together in spite of their cultural diversities. As a result, this enables the students to assist each other in their learning process along with supporting those who are skilled differently. In fact, students are encouraged to learn outside of the classroom anytime and anywhere it suits them (Uzunboylu & Karagozlu, 2015). Consequently, students develop team working skills, communication skills and organizational skills, all of which are vital components for lifelong learners. Last but not least, there is more one-on-one time between the teacher and students. Seeing that the instruction takes place outside of the classroom on the students' own pace, there is more time available in the classroom for additional explanation to those who may require further help (CPS, 2020; Shi-Chun et al., 2014). For the most part, this aspect is a game changer, as it allows the teacher to tend to individual needs in a more proficient manner. To top it all off, the flipped classroom covers all the levels of Bloom's revised taxonomy. To put it into perspective, the lower levels of Bloom's taxonomy, which are remembering and understanding, take place outside of the classroom. Whereas, the higher form of cognitive skills, which are applying, analyzing, evaluating and creating, take place in the classroom with the teacher's guidance and peer support (Uzunboylu & Karagozlu, 2015; Brame, 2013). Seeing that the flipped classroom approach covers all levels of Bloom's taxonomy, it can be regarded as an excellent pedagogical approach that encompasses all the vital skills a student must learn to master.

On the other hand, the flipped classroom also comes with its challenges. These are vital for the researcher to keep in mind during the experiment of this thesis. First and foremost, it is time-consuming for the teacher. The process of creating and gathering class material for the online content requires a lot of time and effort from the teacher, especially when searching for reliable sources that cover all the material (CPS, 2020). However, this is only time consuming in the beginning. It takes time to find fitting videos, content and in-class collaborative activities that correlate with the unit. Nevertheless, Carnevale (n.d.) claims gathering content and resources for future classes goes smoother after the first flipped class. Therefore, it is imperative that the teacher makes a schedule detailing the content for each class, so as to organize its material beforehand. The online material must be provided in advanced in order for the students to prepare themselves properly prior to coming to class. In addition, the effectiveness of the face-to-face sessions rely heavily on student participation and student motivation (CPS, 2020; Shi-Chun et al., 2014). In other words, the flipped classroom approach relies on the students preparing for their classes in advanced by watching the provided online material (CPS, 2020). It must come to no surprise that some students are more motivated than others are. Surely, those who are less motivated may slack in their learning process (Shi-Chun et al., 2014). Provided that a student continuously falls behind on schedule, his/her grades could suffer at the end of the period. In addition to that, students may oppose to what may seem as extra work for them, in other words, viewing class material in their free time (Stone, 2012). Then again, The University of Waterloo (2015) recommends that the teacher put strategies in place to confirm that the students view the provided online materials prior

to coming to class. Moreover, Carnevale (n.d.) stresses the fact that it is completely normal for students to take some time in adjusting to the new style of teaching where they are responsible for their own learning. She goes on to place emphasis on the importance of explaining expectations and procedures prior to flipping the classroom. Similarly, Stone (2012) recommends teachers to convey excitement among students by comparing the outcomes of previous non-flipped classes. Ultimately, if the teacher explains expectations, works consistently and follows the schedule, students will follow the lead.

Lastly, students from low-income families may not have the necessary means to access computers and the internet that the flipped classroom approach requires (Shi-Chun et al., 2014). Students lacking these tools may be forced to use public computers at libraries or internet cafes. However, these may also be out of reach for the students if they have no means of transportation. These students may turn to a relative or friend more easily than visiting a library or internet café, as one would in Curaçao. Other than that, due to COVID-19, many places limit their amount of customers allowed in the building or on the premises. According to an experiment done at a low-income school, some teachers and students were pleased with the flipped classroom, while others found it unfitting (Rybisnky & Sootla, 2015). It is also worth noting that this resulted in students improving their procedural skills, however, their higher order skills were not enhanced, as one would desire. For that reason, it is necessary to do an initial survey to collect data on the starting situation of students. If the teacher encounters students with lack of chief technological tools, the teacher must have a back-up plan to complement this situation.

1.3.5 Teaching Grammar in a Flipped Classroom

One can assert that grammar is the most tedious aspect of a language, one which students are inclined to find dreary. Nevertheless, educators have bent over backwards in creating strategies to be able to teach grammar in a pleasurable manner (Pudin, 2017). Typically, the inductive or deductive approach is used in a traditional grammar classroom. In addition, it is evident that the traditional classroom holds several shortcomings. The most evident one is the lack of time. There is little to no time for reflection and questions at the end of class, which also leads to insufficient time for interactions nor discussions. In essence, there is hardly ever any opportunity available for active learning. Subsequently, Pudín (2017) claims that having recognized this vital deficiency, a more active method to learn has been created to reach a more fun and interactive classroom while teaching and learning grammar. Above all, it is evident that the conventional method of teaching remains tedious when it comes to teaching and learning grammar. For this reason, other pedagogical approaches have been developed so as to complement the limitations of the traditional classroom. As mentioned previously, a more active approach to learning has been developed when it comes to teaching grammar. Hence, the most popular approach that allows students to actively engage in their learning is the “flipped classroom” approach, also called “inverted classroom” as per Lage and Platt (2000). The flipped classroom approach focuses explicitly on conveying active student engagement with the class material in the classroom, while the inactive activities take place outside the classroom (Pudin, 2017). For instance, active engagement activities consist of problem-solving exercises, case studies along with collaboration with classmates. Likewise, the passive activities are reading course materials in notes and/or textbooks as well as listening to lectures.

On the other hand, in a conventional classroom, matters would be dissimilar. That is, the active student engagement would consist of a weekly one-hour tutorial along with possible individual study and informal study groups (Pudin, 2017). What is more, Nicolosi (2012) investigated an alternative method to teaching grammar and found that the flipped classroom approach supports students in switching from passive to active learning mode. Thus, Nicolosi (2012) acknowledges that simply sitting and listening to a teacher lecture may be the least productive way of learning. In other words, the flipped classroom approach consists of active student engagement in the classroom, which is more time-efficient, whereas inactive activities take place outside the classroom on the students' own pace. Ultimately, the flipped classroom approach makes up for the shortcomings of the traditional method. The content, which is often the theoretical part of the class, becomes easily controllable to the learner (Nicolosi, 2012). Also, there is room for more effective active learning since time is utilized in a more efficient manner (Pudin, 2017). Moreover, students undoubtedly learn at their own unique pace, which may result in students missing vital information in a traditional classroom. However, a flipped classroom allows students to control the medium where the content is posted. In other words, students possess the ability to go over the content as they please. Students are able to watch, replay, pause and fast-forward according to their needs and learning pace. As a result, students develop an active learning behavior as well as learning autonomy, as they regulate their own input (Nicolosi, 2012). Moreover, there is more room for face-to-face interaction in class, where collaboration with peers is also enhanced. Lastly, the role of the teacher is strengthened and converted in becoming the guide as opposed to the lecturer (Alias, 2010). It should be noted that the flipped classroom offers many benefits when it comes to teaching grammar. Not only do students control their content intake at their own pace, but they also participate in active learning activities that allows them to put the grammar rules to practice.

1.3.6 Students' Attitude

As is well known, the flipped classroom approach is able to reach numerous diverse learners within a classroom. As per Bergmann and Sams (2014), more class time is available given that educators make use of technology to individualize instruction. As a result, the active, engaging exercises in class present wide-ranging cognitive challenges, which advances the higher order thinking skills of students. In addition, this encourages life-long learning among the students (Farrah & Qawasmeh, 2018). Without a doubt, students are able to work in a collaborative manner with their peers so as to solving problems as well as engage in cooperative activities. Farrah & Qawasmeh (2018) go on to claim that such classroom environments encourage critical thinking skills along with promote social interactions. Essentially, students learn according to all levels of Bloom's taxonomy, which in turn, equips students with vital skills to become life-long learners. Furthermore, it can be stated that the flipped classroom approach encourages the autonomy of the learner coupled with self-direction, which smooths the process of in-class discussions (Farrah & Qawasmeh, 2018). According to a study done at the Eskisehir Osmangazi University in Turkey comparing the academic performance of two groups, the results revealed a higher level of self-regulation as well as social connectedness among students taught in the flipped classroom as opposed to those in the conventional classroom (Jdaitawi, 2019). In other words, the flipped model stimulates self-regulated learning along with promoting social connectedness among students. In addition to that, students' motivation as well as participation are increased due to the enhancement of creativity and critical thinking in the classroom. As a final point, Farrah & Qawasmeh (2018) assert that the students' academic performance, collaborative and communication skills are highly

increased. Simply put, the flipped classroom affects many student characteristics, such as motivation, participation and performance. In addition to the above-mentioned student characteristics affected by the flipped classroom, one vital feature is also positively affected, attitude. Likewise, Farrah and Qawasmeh (2018) used a questionnaire to illustrate the overall attitudes of students toward the flipped classroom approach. On this account, the study revealed that the flipped classroom approach endorses learner autonomy along with self-direction. Furthermore, students considered the flipped classroom to be more exciting, motivating and engaging. On a final note, the researchers vouch for the integration of the flipped classroom so as to establish advanced learning opportunities for students to attain a better academic performance (Farrah & Qawasmeh, 2018). From these results, one may conclude that the research study done by Farrah and Qawasmeh (2018) is aligned with the reviewed literature, thus supporting the integration of the flipped classroom approach. Conversely, Pudín (2017) argues that there is a lack in reliable academic research into student perception along, as a great deal of observations are derived from informal weblogs and others. On the other hand, a recent survey of research done by Bishop and Verleger (2013) claim otherwise. At its core, the survey of research consists of eleven studies that set out to investigate student perceptions on the flipped classroom approach. Seemingly, the results show that the typical student view of the flipped classroom is frequently positive. Nevertheless, a noteworthy subgroup is against this approach. Similarly, Başal (2012) applied the flipped classroom approach in his “Advanced Reading and Writing I” course back in 2012/2013. In fact, Başal (2012) concluded that the majority of his students pose a positive attitude towards the flipped classroom model. Additionally, it is worth noting that Başal realized that his students have a preference for their teacher talking as opposed to YouTube videos of others. As a consequence, Başal decided on making recordings himself. All things considered, it may be concluded that the flipped classroom approach affects the attitude of the majority of students in a positive manner, whether they are provided with online materials or personalized videos of the teacher.

1.3.7 Students’ Participation/Engagement in a Flipped Classroom

As previously mentioned, the participation along with motivation of students are increased in a flipped classroom (Farrah & Qawasmeh, 2018). This is due to the enhancement of creativity as well as the critical thinking involved in the learning activities in the classroom. As a matter of fact, this claim is accurate and reliable, as the same assertion has been made by numerous academics. In the first place, as per Nicolosi’s experiment (2012), it is evident that learners switch from a passive to an active learning mode in a flipped classroom, thus participating more. Additionally, as reported by Hung (2015), the flipped classroom approach affects the participation of students in a positive manner. To be more precise, Hung (2015) studied potential influences that the flipped classroom might have on the English language learner’s academic performance, learning attitude coupled with participation levels. Seemingly, there were three different formats of flipped teaching that were applied and compared to one another. As might be expected, the study found that the structured and semi-structured flipped lessons were more effective as opposed to the non-flipped classes. Moreover, a case study done at an American college revealed that a large group of students found the collaborative activities of a flipped classroom to increase their engagement (Alebrahim & Ku, 2020). As for the faculty members implementing the flipped classroom, they obtained both positive and some negative opinions from students on the matter. In other words, it relied on how the flipped classroom was integrated by the teacher, which in turn, affects the student engagement

and environment. On the other hand, the lecturers who fully integrated the flipped classroom attained only positive opinion. In short, the professors have seen an increase in student engagement, student performance as well as academic performance (Alebrahim & Ku, 2020). For all intents and purposes, one may deduce that the full implementation of the flipped classroom will undoubtedly enhance student participation in the learning activities.

What is more, a similar study has been done in a Norwegian higher education institution where the flipped classroom approach and conventional lectures were compared with one another. However, it must be noted that despite the traditionalistic view on teaching, these lectures consisted of a considerable amount of active learning (Steen-Utheim & Foldnes, 2017). Subsequently, having compared the two methods, students reported higher engagement along with a more positive learning experience in a flipped classroom as opposed to the traditional lectures. In addition, it is worth noting that students are more inclined to engage in a setting where learners are able to reflect upon learning in the flipped classroom (Steen-Utheim & Foldnes, 2017). Put simply, the prominent engagement due to reflections upon learning is solely possible in a flipped classroom, as there is more time to be used efficiently. Furthermore, another study has been done at a secondary level school where the traditional method has been compared with the flipped classroom approach (Clark, 2015). Needless to say, the research findings revealed that the students reacted positively to the flipped classroom. Additionally, the students found that their engagement as well as communication were significantly increased set against the traditional classroom experience. Not only that, students similarly noticed considerable improvements in the quality of instruction along with the efficient use of class time (Clark, 2015). That is to say, that not only does the flipped model enhance student participation and other student characteristics it also improves the instruction quality of the lesson.

1.3.8 Satisfaction of Students Taught in a Flipped Classroom

In addition to the flipped classroom positively affecting the engagement and attitude of students, it has also been proven to enhance student satisfaction levels. In fact, there have been numerous studies done in this area as well. First of all, Pudín (2017) did a study among 120 first-year university students where the participants took part in a flipped classroom experiment. It goes without saying that students provided considerable positive responses, since the majority of the students preferred the flipped model in learning English grammar. Evidently, the flipped classroom approach offers meaningful learning activities. As a result, there is no longer any need for students to participate in teacher-centered lessons consisting of conventional contents. To put it simply, Pudín (2017) concludes that students enjoy learning according to their own pace whilst learning through a variety of learning activities in the classroom. In view of this, Pudín (2017) recommends teachers to use the flipped method for teaching grammar so as to make it more fun and interactive whilst simultaneously providing positive results. On the whole, the satisfaction levels of students are considerably higher in a flipped classroom as opposed to in a traditional environment. It is also worth noting that this is especially the case in grammar lessons. In addition, a research conducted in Saudi Arabia revealed higher student satisfaction in a flipped classroom (Sajid et al., 2016). Most assuredly, this is on account of the flipped model replacing passive lessons with active student-centered learning activities. As a result, students are able to develop a more advanced level of critical thinking and application along with retaining information in a more effective manner. Moreover, Sajid et al. (2016) hypothesize that online learning mediums will play a significantly

large role in the future of education. In fact, this will be on account of the flipped classroom promoting independent learning coupled with amplifying student participation in class. As a result, this method outshines the traditional teaching methods that are known for passivity in the classroom, especially among students. As is well known by now, flipped classrooms provide students with the ability to learn and work on their own pace while eradicating conventional hindrances altogether, such as location and time. Ultimately, Sajid et al. (2016) assert that there is more time for dynamic discussions along with enhanced student collaboration within the flipped classroom. All things considered, students revealed a positive attitude towards the flipped classroom, which ultimately leads to higher satisfaction levels. For the most part, students benefit enormously from the flipped classroom, cognitively as well as in practice.

1.3.9 Performance of Students Taught in a Flipped Classroom

As already indicated, the full integration of the flipped classroom approach positively affects many student characteristics, specifically, attitude, participation, satisfaction as well as academic performance. Evidently, this is owing to students considering the flipped classroom to be more exciting, motivating and engaging. In addition, the enhancement of creativity coupled with critical thinking integrated in the learning activities in a flipped classroom contributes to the positive student attitude. Furthermore, students' engagement and communication were notably enhanced in contrast to the conventional classroom experience (Clark, 2015). Also, it is worth noting that the satisfaction levels of students are considerably higher in a flipped classroom, especially grammar lessons. On the whole, the positive attitude students reveal towards the flipped classroom leads to higher satisfaction levels, which essentially, leads to higher academic performance. In fact, Farrah and Qawasmeh (2018) guarantee advanced learning opportunities in flipped classrooms, which ultimately results in students excelling in their academic performance. In other words, the integration of the flipped classroom approach leads to higher student satisfaction, positive attitude, better student engagement along with higher academic performances. Moreover, a study done at Shenandoah University in the US revealed a 5.4% progression on the mean students' grades taught in a flipped classroom, which was compared to the prior year student performance that was taught in a traditional classroom (Pierce, 2013). Unsurprisingly, this progress is a result of the implementation of active learning activities in the flipped classroom. In the final analysis, students unanimously found the flipped classroom to be an engaging and effective teaching method (Pierce, 2013). So, the flipped model affects student performance in a positive way, provided that it is implemented correctly. What is more, an experiment done in Kazakhstan by Rybinski and Sootla (2015) found that the implementation of the flipped classroom added 1.6-1.7 points to the average student score on their final grade. All things considered, Rybinski and Sootla (2015) conclude that the results of their experiment confirm and support the literature that claim that blended learning positively influences learning outcomes. On a final note, numerous studies prove and maintain similar positions: the flipped model positively affects student characteristics, which in turn, contributes to higher academic performance.

Chapter 2: Research Design

In order to present the research design, this chapter describes the research methods selected for this thesis. The research questions are formulated in section 2.1. Subsequently, section 2.2 provides a description of the research design followed by the flipped classroom experiment in section 2.3. Section 2.4 illustrates the participants followed by the instruments in section 2.5. In section 2.6, the data collection and procedure are discussed and finally, in the data analysis of the obtained data is described in section 2.7.

2.1 Research Questions

The research, of which the results are presented here, focuses on the use of the flipped classroom in English lessons in secondary education. In a group of VSBO students, it is checked whether the use of flipping the classroom as a didactic aid improves the performance of the command of English. Furthermore, an attempt is made to gain insight into the extent to which a relationship can be found between student characteristics such as age, gender, repeater status, and other influencing factors such as attitude, participation and satisfaction on the language performance of the students. Finally, it will be examined for which students, with specific characteristics, the use of flipping the classroom has the most effect on their academic performance for learning grammar in English. In short, it can be stated that this study seeks an answer to the following main question.

Main Question

How are the flipped classroom, attitude, participation and satisfaction related to the academic performance of students learning English grammar in VSBO education?

Sub-questions

1. What is the nature and the extent of the students' academic performance on English grammar at two measurement moments?
2. How is the students' language attitude, participation, and satisfaction in a flipped classroom?
3. What relationship can be found between the students' background characteristics, attitude, participation, satisfaction, and the academic performance?

2.2 The Design

To answer the three formulated research questions, an empirical research was designed using quantitative methods. The research was carried out in VSBO education in Curaçao. A group of VSBO students took an English grammar test at two measurement moments. After the first measurement moment, the students were taught using a flipped classroom approach. After that, another test was taken at the second time of measurement. Written permission was obtained from the school management prior to the study. With regard to the first research question, the performance of the students was measured with two tests consisting of different components of the grammar English language proficiency component. In doing so, we looked at progress and connections.

For the second research question, in addition to personal characteristics, a number of relevant variables such as language attitude, participation and satisfaction of the students in a turned classroom were investigated, using questionnaires for the students. In order to be able to answer the third research question, the data obtained was used to investigate whether links can be found between the different student characteristics, language attitude, participation and satisfaction of the students on the one hand, and the performance on the test after the intervention of a flipped class.

2.3 Flipped Classroom Experiment

The flipped model was integrated in the lessons for a duration of 5 weeks to explicitly teach English grammar. In other words, the students were provided with videos of the grammar items 2-3 days prior to class so as to prepare to take part in learning activities in class. For all intents and purposes, the experiment was to provide students with a better understanding of English grammar and to equip students with more advanced comprehension to take the summative exam. An experiment was designed to obtain the full integration of the flipped classroom model to teach grammar lessons, specifically two units consisting of 11 separate grammar items. Moreover, the experiment exclusively consisted of teaching English grammar in a fully integrated flipped classroom. The grammar lessons were retrieved from two units from the book “New Interface VMBO TL Yellow Label” published in 2010 with a total of 11 distinct grammar items. Furthermore, the duration of the experiment was 5 weeks, consisting of 12 classes of 45 minutes. Evidently, the researcher had to make use of various platforms so as to prepare proper flipped classes. This will be elaborated on in section 1.3.1.

2.3.1 Online Platforms Used for the Experiment

In order to integrate the flipped model effectively in class, the researcher must make use of reliable educational platforms that the students will also utilize. Essentially, the main goal of the flipped classroom is to provide students with class material online prior to class with the purpose of preparing before coming to class. Thus, the researcher makes use of SOMToday as the educational environment the school, students and teachers use, to post videos prior to class for the students to watch. It goes without saying that the researcher posts these videos in advanced so as to give students time to prepare properly, therefore, students can expect the videos to be uploaded 2-3 days prior to class. In addition to that, YouTube was used to carefully select accurate and reliable videos explaining grammar items along with the researcher pre-recording videos to post online. So, a combination of using existing videos and pre-recorded lessons will be used to post on YouTube. Lastly, to stimulate students to watch the videos, the researcher sends a reminder to the class a day prior to each class. All in all, the selected and pre-recorded videos were added to playlists separated by grammar item.

2.4 Participants

There are 60 participants in total, all of which are third year students at the TKL-level (i.e., Theoretisch Kadergerichte Leerweg: pre-vocational secondary education). Moreover, the students’ ages range between 13 to 17 years old. In fact, the range in the age group suggests that there are students who have repeated an academic year or two. Furthermore, it is important to note that there

are 35 males and 25 females participating in this experiment. Certainly, it is of importance to point out that the participants come from different ethnicities and backgrounds, such as Papiament-speaking students, Spanish-speaking students along with some Dutch- and Chinese-speaking students. By questioning the pupils in a preliminary questionnaire, it turned out that 100% of the participants in the test group had what they needed to participate in the experiment with the flipped class, which were: connection to the internet and a personal electrical device.

2.5 Instruments

In order to answer the research questions, the selected variables have been operationalized and converted into the instruments needed for the research. The set of tools consisted of a preliminary questionnaire, two grammar tests and three questionnaires.

2.5.1 Grammar tests

To determine the grammatical skills of the students at the two measurement moments (MM1 and MM2) two grammar tests were used. Both tests are pre-existing tests that contain grammatical items typical of English. The following grammatical items were processed in the first measurement moment test: Past Simple, Much/Many, Word Order, Possessive Pronouns, A/An, Have/has to, Present Perfect, May/Might, Must/Should, Relative pronoun. In the second measurement moment test, these items could be found: Present Perfect, Irregular Verbs, Past Continuous, Can/Can't, Could/Couldn't, Comparison, Used to, Past Simple, Short Answers, Adverbs, Word Order. In checking the internal consistency of these tests, a number of items have been removed. Items with a too high score (ceiling effect), items with a too low score (bottom effect) and items that showed no correlation with the rest. This was done using the Reliability and Item-Total Statistics option in the statistical program. The number of items at the start (Test MM1, $k = 79$ and MM2, $k = 80$) was thus reduced (Test MM1, $k = 36$ and MM2, $k = 56$).

2.5.2 Surveys

In addition to a preliminary questionnaire, the final surveys also consisted of three questionnaires for attitude, participation, and satisfaction. The three separate questionnaires were presented to the students in a composite survey via Google Forms that they could complete in one session in class with the guidance of the researcher.

Preliminary survey

Evidently, the flipped model requires students to have access to the Internet and a device to properly prepare before classes. For this reason, the students were checked by means of a preliminary survey with two questions whether they have access to the necessary tools. The questions were: 1. Do you have your own device (phone, laptop, tablet) that you can use to watch the videos? and 2. Do you have access to internet at home so you can watch the videos? It turned out that to both questions 100% ($n=60$) of the students were able to answer in the affirmative that they had the required items at their disposal. The survey in question was conducted via Google Forms, which collected and assembled the data.

Main survey with 3 questionnaires sections

In the survey, which was anonymous, the students had a code, the students could enter their data at the top such as age, gender, and repeater status. The questionnaires are the culmination of various standardized questionnaires. In other words, the researcher gathered reliable standardized surveys to utilize in this research. The questionnaires which consist of questions regarding attitude, satisfaction, and participation of the students, were adapted to the level of the participants, however, the essence of the questions remains alike. The Likert scale consisting of a five-point scale was used in the three sections of the survey to indicate the degree of disagreement along with agreement. To be more precise: 1 = Strongly disagree, 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly agree. See appendix 1 for the survey questions.

Questionnaire section 1 for Attitude towards the English language

The questionnaire for Attitude towards the English language consisted of 12 statements, in which the students could always answer what they think on a five-point scale. There were statements such as:

1 English is a beautiful language.	1	2	3	4	5
2 I like to speak English.	1	2	3	4	5

Questionnaire section 2 for Participation during the Flipped classes

The questionnaire for Participation during the Flipped classes consisted of 9 statements, in which the students could always answer what they think on a five-point scale. There were statements such as:

1 I watch the video lessons prior to class.	1	2	3	4	5
2 I take notes while watching the video lessons.	1	2	3	4	5

Questionnaire section 3 for Satisfaction levels towards the flipped model

The questionnaire for Satisfaction levels towards the flipped model consisted of 12 statements, in which the students could always answer what they think on a five-point scale. There were statements such as:

1 The flipped classroom is more engaging than the traditional classroom.	1	2	3	4	5
2 The learning activities of the flipped classes were interesting and interactive.	1	2	3	4	5

Markedly, the latter survey will also be conducted in Google Forms. In every respect, the data collected from the participants are strictly anonymous. Moreover, it is key to conduct the surveys digitally and specifically via Google Forms, for it makes it possible to export the collected data easily and import these in a more advanced statistical analysis software, IBM SPSS Statistics 23.

2.5.3 Validity of the tests

In essence, it is key to ensure the validity of the tests as it is fundamental in the data analysis. The summative tests in question are deemed valid for two reasons. First of all, the tests have been reviewed by the English department as well as the exam coordinator at the school concerned for approval prior to the test administration. Secondly, the tests consist of multiple grammar sections made up of at least six items per section, which offers sufficient spread and diversity for the material for the grammar language proficiency component in this year. The amount in question ensures the validity of the test seeing that the grammar knowledge is tested on a broad scale.

2.5.4 Reliability of the tests and survey

Besides the validity of the tests, it is significant to ensure the reliability of the tests as well. As for the first summative test, it consists of 79 grammar items whereas the second summative test consists of 80 grammar items. The survey consists of three sections and totals up to 33 questions. All five sections will undergo a reliability test in an advanced statistical analysis software known as IBM SPSS Statistics 23. In other words, this test will ultimately determine whether the tests and survey are reliable. These will be illustrated and discussed in chapter 3.1.

2.6 Data Collection and Procedure

All parties involved were thoroughly informed about the integration of the flipped classroom approach with the purpose of gathering data for the experiment. Furthermore, it is key to mention that there were various data collection moments throughout this experiment. The preliminary survey to determine if the participants possessed the vital tools to partake in the experiment, has been conducted via Google Forms. In addition to that, the researcher collected initial data that demonstrates the grammar comprehension of students. The data in question came from a summative test that has already been taken by the same group of participants taught by the same teacher. The two grammar tests administered before (MM1) and after the experiment with the flipped class (MM2) used paper test versions. The students could choose from various options that they could write down in the indicated place. In this way the participants took the summative exam, which consists of all the grammar items discussed in the flipped classes. The participants remained with access to the videos with the intention of them using it to study for the exam. Thereafter, the researcher graded the tests and gave the participants their results. Finally, after the participants have received their final grades of the summative assessment, they will take a standardized survey that entails their attitudes, satisfaction levels as well as participation according to the Likert scale. In the same way, it is key for the students to take this survey after receiving their results of the summative exam in order to provide them with the full experience of the flipped model, from beginning to end. Next, the surveys will be conducted on Google Forms, which collects data, assembles similar answers, and provides charts as well as illustrations (see appendix 5 for graph results).

2.7 Data Analysis

The correct (1) and error (0) scores of both grammar tests were entered in Excel. The scores on the Likert scales (1-5) of the three questionnaires in the survey were exported from Google Forms

to Excel. Subsequently, this data was imported into the advanced statistical analysis software IBM SPSS Statistics version 23. First, the tests and questionnaires were tested for reliability, by determining their internal consistency. Individual questions that were not related to the other items were removed and reliability was expressed as an alpha value. Based on the three research questions, the tests and questionnaires that were now found to be reliable could be included in the analyses. To obtain a first picture of the results, the descriptive analyzes were first performed: means, standard deviations and t-tests to see whether the differences found were significant. To find out whether a relationship could be found between the different variables, (Pearson) correlations were calculated, which were then presented in correlation matrices. Regression analyses were performed to determine the influence of the independent variables (student characteristics such as gender, age, duplication status, attitude, participation, and satisfaction) on the dependent variables (grammar tests). However, as few significant relationships could be found, the results of these analyzes were not further involved in the study.

Chapter 3: Results

This chapter presents the findings of this research according to the research questions and aims of the study. Furthermore, this chapter consists of four sections. The first section discusses the internal consistency of the instruments in details. Thereafter, the following three sections deal with the three sub-questions.

3.1 Internal Consistency of the Instruments

To start with, the reliability of the tests coupled with the survey are crucial to establish reliable measurement. Therefore, it is key that these tests and surveys undergo a reliability test that reveals the internal consistency, which is done in SPSS. To be specific, the Cronbach's Alpha (α) value is calculated for each test as well as each section of the survey. In fact, an internal consistency of $0.7 \leq \alpha < 0.8$ (acceptable) and $0.8 \leq \alpha < 0.9$ (good) is desirable (Streiner, 2003). The results in question are shown in table 3.1.

Table 1. Cronbach's Alpha (α), number of cases (n) and number of items (k) and per grammar test (MM1 and MM2) and section of the survey, i.e., the three questionnaires: attitude, participation, and satisfaction

	Cronbach's Alpha (α)	n	k
MM1	0.87	60	36
MM2	0.90	60	56
Attitude	0.76	60	8
Participation	0.79	60	7
Satisfaction	0.81	60	11

Measurement Moment 1 (MM 1). The internal consistency of the MM1 test proves to be good ($\alpha=0.87$). Moreover, the items that showed insufficient coherence overall have been deleted from the original test ($k=79$) and shortened to $k=36$. *Measurement Moment 2 (MM 2).* The internal consistency of the MM2 test is the highest of them all with $\alpha=0.90$, which is considered to be good. Additionally, the items showing insufficient coherence were removed from the original total ($k=80$) resulting in $k=56$.

Attitude. The section 'attitude' from the survey has an acceptable alpha value at $\alpha=0.76$. Furthermore, the reliability test eliminated four items proving to have insufficient coherence making the final version to contain eight items.

Participation. The internal consistency of the 'participation' section of the survey holds an acceptable value ($\alpha=0.79$). In addition, two items were removed during the reliability test due to insufficient coherence, rendering the final total items to $k=7$.

Satisfaction. The 'satisfaction' section of the survey shows to be of good value ($\alpha= 0.81$). Also, of the original twelve items, only one had to be removed because of insufficient coherence making the final version $k=11$.

All in all, it is evident that the instruments used in this research have all proven to be reliable and thus, trustworthy. In fact, the majority hold a good alpha value, which strengthens the reliability of the research results. See appendix 3 for the items that have been kept after the reliability test.

3.2 Academic Performance on English Grammar

The first research question was as follows. What is the nature and the extent of the students' academic performance on English grammar at two measurement moments? In order to obtain an answer to this research question, means, percentages of good scores and standard deviations were determined. Subsequently, a t-test was used to determine whether the difference in performance between measurement at moment 1 (MM1) and measurement at moment 2 (MM2) is significant. The results are presented in Table 2.

Table 2. Mean (M), standard deviations (SD), Mean percentage (M%), standard deviation percentage (SD%) t-tests (t), p-value (p), number of cases (n) and number of items (k) of the grammar tests (MM1 andMM2)

	Mean	SD	M %	SD %	t	p	n	k
MM1	22.88	6.68	63.56	18.55	26.54	.00	60	36
MM2	38.12	8.07	68.07	14.41	36.58	.00	60	56

The results show that the score at measurement moment 2 is higher (MM2=68.07%) than at measurement moment 1 (MM1=63.56%). In addition, from the t-test, it can be concluded that the increase in performance on the grammar test is significant. In fact, the difference in performance between measurement moment 1 and measurement moment 2 is significant seeing that the p-value is <0.001. In other words, the observed difference is significant at the highest level, this means at the level of 99,9% of probability (p). Moreover, to gain more insights on the partial achievements of the students on the grammar tests, the individual parts of the test were also examined. In this regard, the Measurement Moment 1 (MM1) consists of: past simple, much/many, word order, possessive pronouns, a/an, present perfect, must/should and relative pronouns. The results are shown in table 3.

Table 3. Mean (M), standard deviation (SD), Mean percentage (M%), standard deviation percentage (SD%) number of cases (n) and number of items (k) per cluster on the MM1 grammar test.

	Mean	SD	M %	SD %	n	k
Past Simple	6.40	3.23	64.0	32.4	60	10
Much/Many	2.50	0.83	83.3	27.8	60	3
Word Order	5.32	2.28	76.0	32.6	60	7
Possessive Pronouns	1.72	1.25	57.2	41.7	60	3
A/An	2.25	0.86	75.0	28.5	60	3
Present Perfect	0.88	1.38	17.7	27.6	60	5
Must/Should	2.35	1.12	78.3	37.2	60	3
Relative pronoun	1.47	0.68	73.3	33.8	60	2

The results in table 3. show the mean per grammar item along with the standard deviation. Essentially, these provide a clear overview of how well or how badly the students did on each item. As for the grammar items much/many, word order, a/an, must/should and relative pronouns, it can be concluded that the students performed relatively well on these. Furthermore, for past simple and possessive pronouns, the students' scores are acceptable. On the other hand, it is evident that students scored very low on the grammar item 'present perfect', which indicates that this was the most difficult one on the test.

In addition, to a more in-depth insight, an analysis has been done to review how certain grammar items are related to each other in Measurement Moment 1. This has been done with a correlation analysis and the results are illustrated in table 4.

Table 4. Correlations between grammar items in the first grammar test (MM1)

	Past Simple 1	Much/Many 2	Word Order 3	Possessive Pronouns 4	A/An 5	Present Perfect 6	Must/ Should 7	Relative pronouns 8
1 Past Simple	1.00							
2 Much/Many	.48**	1.00						
3 Word Order	.14	.17	1.00					
4 Possessive Pronouns	.26*	.11	.35**	1.00				
5 A/An	.41**	.49**	.11	.26*	1.00			
6 Present Perfect	.08	.16	.15	.20	.13	1.00		
8 Must/Should	-.02	.01	.16	.20	-.02	.36**	1.00	
9 Relative pronouns	.20	.15	.33**	.48**	.15	.15	.21	1.00

* = $p < .05$; ** = $p < .01$; *** = $p < .001$

Interestingly, the results in table 4. show that there are nine significant correlations between certain grammar items. First of all, past simple has a rather strong relationship with much/many, possessive pronouns and a/an. Furthermore, much/many has a strong correlation with a/an, while word order has key links with possessive pronouns as well as relative pronouns. In addition, the possessive pronouns also have a connection with a/an coupled with relative pronouns. However, it is evident that present perfect barely has a relationship with any of the other grammar items except for must/should. What is even more distinct is the fact that these two grammar items are solely linked to each other and no other grammar items. Although the correlation between the items of the test is not predominantly high and significant, we are generally dealing with positive correlations between the test items. This was also the underlying cause for a decent alpha value on the internal consistency test of this grammar test. There is only 1 negative correlation, which

indicates that students who master the item Must/Should score poorly on the item Past Simple. To gain more insights on the partial achievements of the students on the grammar tests, the individual parts of the second grammar test were also examined. In this regard, the second grammar test (MM2) consists of: present perfect, irregular verbs, past continuous, can/can't, could/couldn't, comparison, used to, past simple, short answers and word order. The results are shown in table 5.

Table 5. Mean (M), standard deviation (SD), Mean percentage (M%), standard deviation percentage (SD%) number of cases (n) and number of items (k) per cluster on the second grammar (MM2) test

	Mean	SD	M %	SD %	n	k
Present Perfect	1.73	2.28	21.67	28.55	60	8
Irregular Verbs	4.72	1.37	78.61	22.78	60	6
Past Continuous	3.30	3.19	41.25	39.88	60	8
Can/Can't	5.88	0.78	98.06	13.05	60	6
Could/Couldn't	4.72	0.88	94.33	17.69	60	5
Comparison	3.10	1.28	77.50	32.12	60	4
Used to	5.72	1.08	95.28	17.92	60	6
Past Simple	4.63	2.15	57.92	26.93	60	8
Short Answers	3.57	0.74	89.17	18.62	60	4
Word Order	0.75	0.44	75.00	43.67	60	1

The results presented in table 5 show the mean per grammar item along with the standard deviation. In essence, these provide a clear overview of how well or how badly the students did on each item. Firstly, the students did excellently on the grammar items with high percentages correct score on these items with percentage scores above 90%: can/can't (98.06%), used to (95.28%) and could/couldn't (94.33). Also, they performed rather well on irregular verbs (78.61%), comparisons, short answers (89.17%) and word order (75%). However, it is noticeable that the grammar item word order has slightly declined compared to MM1, from 76% to 75%. It is also noticeable that past simple has not been made well in comparison with the mean in MM 1; from 64% to 57.92%. In addition to that, the students did not perform that well (below 50%) on past continuous (41.25%). On the other hand, present perfect seems to have the lowest mean of 21.67%, however, it is a progress compared to the 17.7% on the MM1.

For a deeper understanding of the results, an analysis has been done to review how certain grammar items are related to each other in the second Measurement Moment (MM2). This has been done with a correlation analysis and the results are disclosed in table 6.

Table 6. Correlations between items in the grammar test MM1

	Present Perfect	Irregular Verbs	Past Continuous	Can/ Can't	Could/ Couldn't	Comparison	Used to	Past Simple	Short Answers	Word Order
	1	2	3	4	5	6	7	8	9	10
1 Present Perfect	1.00									
2 Irregular Verbs	.10	1.00								
3 Past Continuous	.38**	.25	1.00							
4 Can/Can't	-.06	.05	.16	1.00						
5 Could/Couldn't	.05	-.05	.22	.66**	1.00					
6 Comparison	.14	.26*	.21	.20	.13	1.00				
7 Used to	.12	.04	.24	.52**	.56**	.06	1.00			
8 Past Simple	.17	.61**	.09	.29*	.18	.34**	.17	1.00		
9 Short Answers	.00	.21	.32*	.64**	.51**	.24	.39**	.42**	1.00	
10 Word Order	.09	-.09	.31*	.26*	.30*	.17	.21	-.03	.29*	1.00

* = $p < .05$; ** = $p < .01$; *** = $p < .001$

The results in table 6. show that there are nineteen significant correlations between certain grammar items. In fact, many of the correlations have a higher rate as opposed to MM1. First and foremost, present perfect once again has only one correlation with another item, in this case, past continuous. Moreover, the grammar item 'irregular verbs' has a link with comparison, however, its link with past simple is significant; this is unquestionably related to the fact that both these items are in the past tense. Additionally, past continuous has links with short answers as well as word order. Evidently, the grammar item with the most correlations is can/can't, which is connected to could/couldn't, used to, past simple, short answers and word order. Furthermore, could/couldn't corresponds with used to, short answers along with word order. In addition to that, comparison is linked to past simple, used to is connected to short answers, past simple is associated with short answers and short answers is linked to word order.

Finally, a Pearson correlation analysis has been done to determine if the background characteristics of the students are interrelated with the performance (MM1 and MM2). To get a clearer view on the nature of performance, the variables age, gender, and repeater status are included in the analysis. The results are presented in table 7.

Table 7. Correlations between age, gender, repeater status and the two grammar tests (MM1 and MM2)

	Age	Gender	R.S.	MM1	MM2
Age	1.00				
Gender	.03	1.00			
Repeater Status	.54**	-.13	1.00		
Grammar test MM1	-.01	.10	-.12	1.00	
Grammar test MM2	-.30*	-.07	-.18	.19	1.00

* = $p < .05$; ** = $p < .01$; *** = $p < .001$

The results in table 7 indicate two meaningful correlations: age and repeater status; age and Measurement Moment 2. In reality, age and repeater status correlate and present a significant correlation, however, this is logical, since the students who have repeated a year or two before in their school career, have a higher age. In addition, age and Measurement Moment 2 are negatively linked to each other. In other words, older students, essentially, those with a high repeater status, have scored lower on MM 2. The negative, although not significant, correlation with grammar MM2 can be explained in the same way. This is due to the fact that weaker students score lower, as one would expect. On the other hand, there seems to be no significant correlation between MM1 and MM2, which is peculiar, since students who score well on MM1 should also score well on MM2.

3.3 Students' Language Attitude, Participation and Satisfaction in a Flipped Classroom

The second research question was as follows. How is the students' language attitude, participation, and satisfaction in a flipped classroom? In order to answer the second sub-question, a Pearson correlations analysis has been done to establish connections between the variables attitude, participation, satisfaction and MM2. The results of this analysis are presented in table 8.

Table 8. Correlations between attitude, participation, satisfaction, and grammar test MM2.

	Attitude	Participation	Satisfaction	MM2
Attitude	1.00			
Participation	.50**	1.00		
Satisfaction	.42**	.35**	1.00	
Grammar MM2	.35**	.17	.37**	1.00

* = $p < .05$; ** = $p < .01$; *** = $p < .001$

The results shown in table 8 prove to be quite noteworthy, as 5 out of 6 correlations are considered significant. In fact, nearly all variables are interrelated with great significance.

Attitude. Students posing positive attitudes towards English have high participation levels in a flipped classroom. As a result, students with positive attitudes have higher satisfaction levels and score very well on MM2.

Participation. As mentioned above, participation and attitude are closely linked, which is evident due to the high level of significance. In addition, the results reveal that participating students have higher satisfaction levels as well.

Satisfaction. The variable satisfaction is evidently strongly interrelated with all other variables. In other words, the students with high satisfaction levels at the end are those who pose a positive attitude towards English, participate actively in during the flipped classes and score well on the test (MM2).

Grammar test MM2. The results for the grammar test at the second Measurement Moment (MM2) corresponds with the variables attitude and satisfaction. In fact, this is discernable, as those who scored well on MM2 were students who posed a positive attitude towards English as well as ended up with high satisfaction levels. However, it is noticeable that the variable participation is somewhat distantly related to MM2 as opposed to the other variables. Nonetheless, it can be concluded that the participation levels are lower, since those who participate less during the flipped classroom score lower as well. On the other hand, it could also be that the participation levels do not quite depend on the MM2 scores.

3.4 Performance on grammar in a flipped class in relation to other variables

The third research question was as follows: what are the correlations between the students' background characteristics, attitude, participation, satisfaction, and the academic performance?

With the purpose of obtaining an answer to the third sub-question, a Pearson correlation analysis has been done in order to determine connections between all variables. In this section it is important to also focus on the role of the flipped classroom experiment. These are as follows: age, gender, repeater status, attitude participation, satisfaction, MM1 and MM2. The results of these correlations are shown in table 9.

Table 9. Correlations between students' characteristics (age, gender, repeater status), students' position (attitude, participation, satisfaction) and students' performance (MM1, MM2).

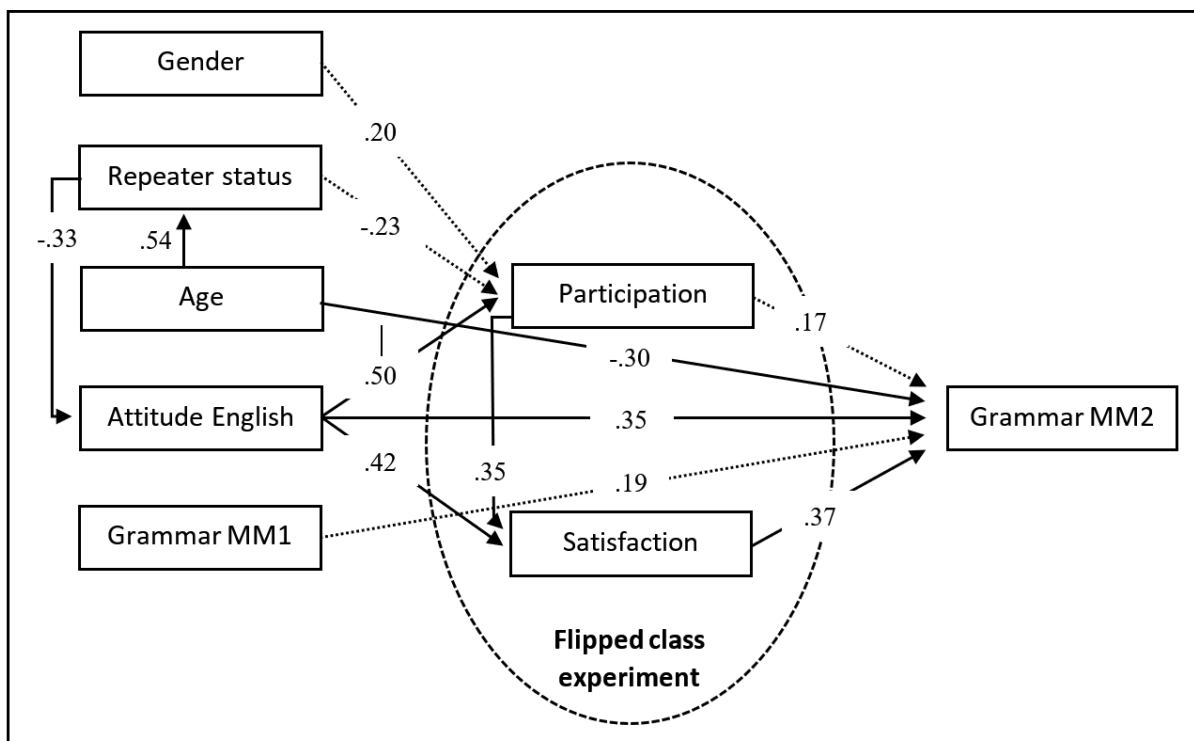
	Age	Gender	Repeater Status	Attitude	Participation	Satisfaction	MM1	MM2
	1	2	3	4	5	6	7	8
1 Age	1.00							
2 Gender	.03	1.00						
3 Repeater Status	.54**	-.13	1.00					
3 Attitude	-.16	-.10	-.33**	1.00				
4 Participation	.00	.20	-.23	.50**	1.00			
5 Satisfaction	-.18	.06	-.16	.42**	.35**	1.00		
6 MM1	-.01	.10	-.12	.08	.13	.02	1.00	
7 MM2	-.30*	-.07	-.18	.35**	.17	.37**	.19	1.00

* = $p < .05$; ** = $p < .01$; *** = $p < .001$

The results of the Pearson correlation analysis in table 9 indicate eight significant connections. However, seven of the eight correlations have already been presented and discussed. Nonetheless, there is one significant new correlation, which is the connection between repeater status and attitude. As a matter of fact, the latter was to be expected. In short, students who have had to redo an academic year pose a negative attitude towards the English language. Albeit this does not necessarily mean that those students despise English, it can be concluded that repeaters have a less positive attitude altogether. In addition to that, there is also a less significant correlation between repeaters and their participation levels. Meaning, repeaters tend to participate less during classes, which could be due to lack of interest of having to redo an academic year. Furthermore, an interesting occurrence is the fact that the variable gender has absolutely no significant correlation with any other variable. In other words, gender does not affect students' characteristics, position nor performance.

Searching for causal relationships using regression analysis did not reveal any clearly significant relationships. Based on the order in time and assumptions about the relationships between the variables, a diagram (Figure 1) is presented that tries to approximate the relationships between the measured variables and the dependent variable: performance for grammar at the second time of measurement (MM2) after the intervention with the flipped class. The strength of the relationships is shown by the correlations found (see Table 9). Significant relationships use an arrow and non-significant relationships show a dotted arrow.

Figure 1. Relationships (as calculated correlations) between the measured variables: student characteristics (gender, attitude, grammar MM1, age, class repeat), the flipped class experiment (participation, satisfaction) and the main dependent variable (performance on grammar MM2)



The correlations obtained, which are included in the explanatory model (figure 1), give an indication of the possible causal relationships between the variables. Attitude towards English appears to be the strongest predictor for participation ($r=.50$) and for satisfaction ($r=.35$), which means that a positive attitude is the strongest predictor for the success rate of the flipped classroom experiment. In addition, attitude is the strongest direct predictor of the variation in grammar achievement scores ($r=.35$) after the students participated in the flipped classroom experiment. The diagram also shows that the attitude of the students themselves is influenced by age via repeater status ($r=.54$). This indicates that students who have repeated a class more often have a less positive attitude, which in turn has a negative influence on their score on the grammar test (MM2) ($r=-.30$). The non-significant positive relationship between gender and participation ($r=.20$) indicates that the girls' participation in the experiment was better than that of the boys. The diagram shows that

the higher the level of participation, the higher the performance of the students on the grammar test (MM2). However, the correlation ($r=.17$) is not significant. Although the degree of participation has a weak direct influence on the performance for grammar, it is striking that for the flipped class experiment itself (participation and satisfaction), the students with a high degree of participation were certainly satisfied with the experiment ($r=.35$). The satisfied students also scored higher on the grammar test (MM2) ($r=.37$).

Chapter 4: Conclusions and Discussion

Conclusions. The research reported on in this thesis aimed to identify how the flipped class, attitude, satisfaction, and participation levels relate to the academic performance of students learning English grammar in VSBO education in Curaçao. Based on three sub-questions and an appropriate design, 60 students were involved in the research. Furthermore, tools were used that were tested for reliability, consisting of two grammar tests and four questionnaires. A flipped class experiment was also set up and performed in 5 weeks. Regarding the first question about the nature and extent of the students' academic performance in English grammar at two measurement points, it was found that the students had improved significantly by 14% on the second test after the flipped classroom experiment. When answering the second research question, regarding the language attitude, participation, and satisfaction of the students in a turned class, it was seen that students with a positive attitude towards English have a high participation rate in a turned class. The same students are also satisfied with the experiment and score well on the grammar test after the experiment with the flipped classroom. The third question addressed the relationship that could be found between the background characteristics, attitude, participation, satisfaction, and academic performance of the students. Using an explanatory model based on time sequence and assumptions about the relationships between the variables, causal relationships were interpreted with the significant correlations found. The strongest influence appears to be the attitude of the students towards English. A more positive language attitude resulted in higher performance on the final grammar test ($r = .35$) and better participation in the flipped class experiment ($r = .50$) and these students were more satisfied with the experiment ($r = .42$). It also appears that students who are older and have previously repeated classes, have a lower participation rate in the experiment ($r = -.23$, not significant) and score lower on the final grammar test ($r = -.30$). The results of this research provide useful insights into the targeted implementation of the flipped classroom in education in Curaçao. The relationships between the most important variables have become clearer, especially because they could be quantified by the design and the analysis. It is clear that the flipped classroom has a positive influence on grammar performance and that the positive attitude of the students towards English is very important for the success of the flipped class approach. Additionally, it is interesting to note that the survey reveals that the majority of students with positive attitude towards English enjoy speaking the language, they like studying English, are interested in learning English and look forward to the time spent in English classes. In addition to that, the majority of students find it important for people in Curaçao to speak English, it is also an important goal in their lives to know English and they wish that their future children also learn English.

Discussion. As the study has revealed, there has been a 4.14% improvement to the average student score in the final grade. The survey results reveal that a great deal of students find that the flipped classroom has improved their grammar understanding and made them more motivated to learn grammar. The students also enjoyed participating in active learning activities during class and found the flipped classroom to be more engaging and interactive than the traditional classroom. These results confirm and reinforce earlier findings in literature that indicate that positive attitudes and higher satisfaction levels result in grade improvements. To be precise, one of the researches in question is the work of Rybinski and Sootla (2015) which revealed that students taught in a flipped classroom scored higher on the final test and recorded high satisfaction levels. Moreover, the results of the researchers Farah and Qawasmeh (2018) showed meaningful satisfaction levels

of students in a flipped classroom, which in turn, positively affects students' academic progress. With these results in mind, the researcher believes that implementing the flipped model in the classroom in a proper way, leads to a notable effect on the performance of the students. Not only that, but students taught in a flipped classroom have proven to maintain positive attitudes along with higher satisfaction levels, which inevitably results in a reduction of frustrating sessions. Limitations and Further Research. In this study, the two grammar tests used showed a number of items a bottom and a ceiling effect. Removing these items from the reliability analysis decreased the correlation between the two tests. Regression analysis proved difficult due to a limited number of participants ($n = 60$) compared to the number of variables ($k = 8$). In further research, time could be allotted to try out both tests for appropriate tests for the level of these particular students. A larger group of participants would be more effective for causal analyzes, in which, in addition to mutual relationships with correlations, causal influences can also be looked at. In addition, researchers may conduct similar studies locally so as to acquire more valuable data in the area of language learning in the Curaçaoan educational context. The outcomes of this present study could serve as a basis for this.

Recommendations. On the other hand, the results also reveal no significant correlation between participation levels and performance at the end of the semester. That is to say that there is little difference in performance results among students who participate actively in class as opposed to those who do not. This may be in view of the fact that the flipped model is a novel approach to teaching, which causes students to be hesitant to participate actively from the beginning, as they are growing accustomed to a new method of teaching. In addition to that, the results have also provided an additional insightful outcome where older students, specifically repeaters, tend to score lower on tests. This is due to repeaters being academically weaker students in general. Altogether, the main purpose of this research was to determine how the flipped classroom, attitude, satisfaction, and participation levels influence the academic performance of students learning English grammar in VSBO education in Curaçao. Certainly, secondary schools in Curaçao may find the results of this research to be insightful and valuable considering that it will assist them in the enhancement of the educational learning process by purposefully implementing the flipped model accordingly. In view of that, the results also add to their knowledge on the performance benefits of students with positive attitudes and higher satisfaction levels.

Based on these conclusions, the researcher recommends educators to implement the flipped model mindfully seeing that it ensues students with higher satisfaction levels as well as strengthens the attitude towards language. As a result, students will perform better academically as well as being provided with better learning opportunities.

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Appendices

Appendix 1: Survey Questions on Attitude, Participation and Satisfaction

Gender:

- Male
- Female

Have you ever had to redo an academic year (ben je ooit blijven zitten?):

- Never
- Once
- Twice

How old are you?

- 13-14 years old
 - 15-16 years old
 - 17 years old
-

In all three sections, the students have to choose from 1-5 for each statement.

Likert scale:

1 – Strongly disagree	1
2 – Disagree	2
3 – Neutral	3
4 – Agree	4
5 – Strongly agree	5

Section 1: Attitude towards the English language

Attitude

1. English is a beautiful language.
2. I like to speak English.
3. It is important for people in Curaçao to be able to speak English.
4. I feel embarrassed to speak English in front of other students.
5. In my opinion, the English language is difficult and complicated to learn
6. I get nervous when I have to answer a question in my English class
7. Studying foreign languages like English is enjoyable
8. I am interested in studying English
9. Knowing English is an important goal in my life
10. I look forward to the time I spend in English class
11. I prefer studying in my mother tongue rather than any other foreign language
12. If I have children in the future, I would want them to speak English.

Section 2: Participation during the Flipped classes

Participation

1. I watch the video lessons prior to class.
2. I take notes while watching the video lessons.
3. I re-watch the videos if I need more explanation.
4. I actively participate during the learning activity.
5. I participate better in a flipped classroom than in a traditional classroom.
6. I pay attention during the learning activities in class.
7. I ask questions to get more information when necessary.
8. I try to help classmates when they are having trouble with an assignment.
9. I work well in group assignments during class.

Section 3: Satisfaction levels towards the flipped model

Satisfaction

1. The flipped classroom is more engaging than the traditional classroom.
2. The learning activities of the flipped classes were interesting and interactive.
3. I enjoy participating in active learning activities during class instead of listening to passive lectures.
4. I learn best by doing rather than by listening.
5. The flipped classroom gives me better opportunities to interact with other students
6. I feel that the flipped classroom has improved my grammar understanding

7. I am more motivated to learn grammar through the flipped classroom
8. The flipped classroom reduces the amount of frustrating classes.
9. Class materials (online video explanations) were easily accessible.
10. I like watching the lessons on videos
11. I would recommend the flipped classroom to a friend.
12. I would rather have traditional teacher led lesson than watching a lesson video

Appendix 2: MM1, MM2 and survey questions that have been kept after reliability test

MM1 items kept after Reliability Test (k=36)

Past Simple	A1,A2,A3,A4,A5,A6,A7,A8,A9,A10
Much/Many	B2,B3,B6,
Word Order	C1,C2,C3,C5,C6,C7,C10
Possessive Pronouns	D4,D7,D8
A/An	E5,E6,E8
Have/has to	-
Present Perfect	G1,G2,G4,G7,G10
May/Might	-
Must/Should	I1,I4,I5
Relative pronoun	J2,J4

MM2 items kept after Reliability Test (k=56)

Present Perfect	A1,A2,A3,A4,A5,A6,A7,A8
Irregular Verbs	B1,B2,B4,B5,B7,B8
Past Continuous	C1,C2,C3,C4,C5,C6,C7,C8
Can/Can't	D1,D2,D3,D4,D5,D6
Could/Couldn't	E1,E3,E4,E5,E6
Comparison	F1,F4,F5,F8
Used to	G1,G2,G3,G4,G5,G6
Past Simple	H1,H2,H3,H4,H5,H6,H7,H8
Short Answers	I3,I4,I7,I8
Adverbs	-
Word Order	K2

Survey Questions kept after Reliability Test (k=26)

Attitude (k=8)	Att1,Att2,Att3,Att7,Att8,Att9,Att10,Att12
Participation (k=7)	Part1,Part2,Part3,Part6,Part7,Part8,Part9
Satisfaction (k=11)	Sat1,Sat2,Sat3,Sat4,Sat5,Sat6,Sat7,Sat8,Sat9,Sat10,Sat11

Appendix 3: Surveys Results

Attitude					
Statement	Likert Scale				
	1	2	3	4	5
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
English is a beautiful language.	1.7%	1.7%	16.7%	48.3%	31.7%
I like to speak English.	1.7%	5%	18.3%	51.7%	23.3%
It is important for people in Curaçao to be able to speak English.	1.7%	21.7%	48.3%	28.3%	0%
I feel embarrassed to speak English in front of other students.	31.7%	33.3%	16.7%	13.3%	5%
In my opinion, the English language is difficult and complicated to learn	36.7%	33.3%	13.3%	13.3%	3.3%
I get nervous when I have to answer a question in my English class	41.7%	16.7%	26.7%	6.7%	8.3%
Studying foreign languages like English is enjoyable	1.7%	6.7%	25%	53.3%	15%
I am interested in studying English	0%	0%	25%	45%	30%
Knowing English is an important goal in my life	0%	5%	28.3%	45%	30%
I look forward to the time I spend in English class	0%	0%	43.3%	36.7%	20%
I prefer studying in my mother tongue rather than any other foreign language	8.3%	43.3%	35%	8.3%	6.7%

. If I have children in the future, I would want them to speak English	0%	0%	25%	4.7%	38.3%
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Participation					
Statement	Likert Scale				
	1	2	3	4	5
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I watch the video lessons prior to class.	18.3%	6.7%	33.3%	26.7%	15%
I take notes while watching the video lessons.	36.7%	35%	15%	8.3%	5%
I re-watch the videos if I need more explanation.	30%	20%	10%	28.3%	11.7%
I actively participate during the learning activity.	0%	0%	8.3%	46.7%	45%
I participate better in a flipped classroom than in a traditional classroom.	0%	0%	28.3%	35%	36.7%
I pay attention during the learning activities in class.	0%	0%	3.3%	58.3%	38.3%
I ask questions to get more information when necessary.	8.3%	18.3%	31.7%	31.7%	10%
I try to help classmates when they are having trouble with an assignment.	6.7%	6.7%	31.7%	41.7%	13.3%
I work well in group assignments during class.	5%	1.7%	15%	40%	38.3%

Satisfaction					
Statement	Likert Scale				
	1	2	3	4	5
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The flipped classroom is more engaging than the traditional classroom.	0%	0%	11.7%	33.3%	55%
The learning activities of the flipped classes were interesting and interactive.	0%	1.7%	6.7%	41.7%	50%
I enjoy participating in active learning activities during class instead of listening to passive lectures.	0%	3.3%	6.7%	33.3%	56.7%
I learn best by doing rather than by listening.	0%	3.3%	25%	41.7%	40%
The flipped classroom gives me better opportunities to interact with other students	0%	1.7%	26.7%	48.3%	23.3%
I feel that the flipped classroom has improved my grammar understanding	1.7%	0%	30%	48.3%	20%
I am more motivated to learn grammar through the flipped classroom	0%	1.7%	21.7%	36.7%	40%
The flipped classroom reduces the amount of frustrating classes.	1.7%	3.3%	26.7%	40%	28.3%
Class materials (online video explanations) were easily accessible.	0%	5%	15%	36.7%	43.3%
. I like watching the lessons on videos	8.3%	18.3%	21.7%	40%	11.7%

. I would recommend the flipped classroom to a friend.	0%	1.7%	15%	38.3%	45%
. I would rather have traditional teacher led lesson than watching a lesson video	28.3%	15%	26.7%	18.3%	11.7%
