EFFECTS OF DIFFERENT VIDEO MODALITIES ON WRITING ACHIEVEMENT IN FLIPPED ENGLISH CLASSES

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EFFECTS OF DIFFERENT VIDEO MODALITIES ON WRITING ACHIEVEMENT IN FLIPPED ENGLISH CLASSES

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DECLARATION OF ORIGINALITY

I, Duygu Umutlu, certify that

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ABSTRACT

Effects of Different Video Modalities on Writing Achievement

in Flipped English Classes

This study investigated different modalities of videos in a flipped classroom for English writing classes in the intensive English program at a state university. The study, a quasi-experimental design in nature, was conducted with six experimental groups and one control group (n = 127). The participants' writing performance formed the study data which was collected by means of a writing pretest and two posttests, namely, conceptual and essay writing posttests. Moreover, participants' learning styles, learner autonomy levels, and critical thinking disposition levels were measured with three different scales. The data analyses showed that the group studying the animation with simultaneous text and sequenced narration in a user- paced environment outperformed the control group having lectures in class in the conceptual posttest. The groups studying the animation with simultaneous narration and sequenced text, in a whole presentation, where students studied all the parts of a video in a system-paced design, and then they answered the related questions, and the animation with simultaneous narration and sequenced text in a part-by-part presentation, in which students studied each part of a video, and then they answered the related questions, outperformed the control group in the essay writing posttest. No significant effect of learning style, learner autonomy, and critical thinking disposition on the writing achievement in a flipped class design were found. The thesis provided a discussion and a set of recommendations on designing flipped classrooms according to multimedia design principles.

ÖZET

Ters-Yüz Edilmiş Sınıf Modelindeki Farklı Video Tasarımlarının İngilizce Yazma Becerisi Üzerindeki Etkileri

Bu çalışma, bir devlet üniversitesi yoğun İngilizce programında ters-yüz edilmiş sınıf modelinde kullanılan farklı video ders tasarımlarının İngilizce yazma başarısı üzerine etkilerini incelemiştir. Yarı-deneysel olan çalışma, 6 deney ve 1 kontrol grubunda 127 katılımcıyla uygulanmıştır. Katılımcıların yazma performansı kavramsal sontest ve kompozisyon yazma sontesti ile ölçülmüştür. Ayrıca katılımcıların öğrenme stilleri, öğrenme özerkliği seviyeleri ve eleştirel düşünme eğilimi seviyeleri üç ayrı ölçek ile belirlenmiştir. Veri analizleri, kullanıcı kontrollü ortamda görsel materyal ve yazı aynı anda sunulup arkasından sesli açıklama gelen video dersini çalışan grubun geleneksel sınıf modelinde ders yapan kontrol gruba göre kavramsal sontestte daha başarılı olduğunu göstermektedir. Ayrıca görsel materyal ve yazı aynı anda sunulup arkasından sesli açıklama gelen video dersini sistem kontrollü bir bütün sunum halinde çalışıp sonra ilgili soruları cevaplandıran öğrencilerin ve görsel materyal ve yazı aynı anda sunulup arkasından sesli açıklama gelen video dersini her bir bölümün ilgili sorularını o bölümden sonra cevapladıkları parça parça bir sunumla çalışan öğrencilerin kompozisyon yazma sontestinde kontrol grubuna göre başarısı daha yüksek olmuştur. Öğrenme stillerinin, öğrenme özerkliği seviyesinin ve eleştirel düşünme becerisi seviyesinin ters-yüz edilmiş sınıf modelinde yazma başarısı üzerinde anlamlı bir etkisi bulunmamıştır. Bu tez, çoklu ortam tasarım ilkelerine göre geliştirilen ters-yüz edilmiş sınıf tasarımları üzerine bir irdeleme ve birtakım öneriler sunmaktadır.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

(1) AN+T: The video lecture including the modalities “Animation with simultaneous Narration and sequenced Text” in a user-paced environment

(2) AT+N: The video lecture including the modalities “Animation with simultaneous Text and sequenced Narration” in a user-paced environment

(3) AN+T_W: The video lecture including the modalities “Animation with simultaneous Narration and sequenced Text” in a whole presentation, where students studied all the parts of a video in a system-paced design, and then they answered the related questions

(4) AN+T_P: The video lecture including the modalities “Animation with simultaneous Narration and sequenced Text” in a part-by-part presentation, in which students studied each part of a video, and then they answered the related questions

(5) AN+T_LC: The video lecture including the modalities “Animation with simultaneous Narration and sequenced Text” in a learner-controlled presentation, in which students could start studying the video from any part they wanted

(6) AT+N_LC: The video lecture including the modalities “Animation with simultaneous Text and sequenced Narration” in a learner-controlled presentation, in which students could start studying the video from any part they wanted

CHAPTER 1

INTRODUCTION

With advancements in technology, technology has been integrated into educational settings more than ever. Moreover, designing learning environments appealing to millennial learners is inevitable because as Phillips and Trainor (2014) state, these learners were born into a world in which technology is everywhere. Furthermore, the idea of extending the boundaries of the classrooms is becoming more and more prevalent. One of the recent developments based on this idea is that of the flipped classroom, which aims to create more in-class time by putting the lectures out of the classroom. In a flipped design, video lectures are prepared and sent to learners, and after studying the videos at home, learners are involved in active learning through hands-on and problem-solving tasks. In flipped designs, learners need to allocate out-of-class time to study video lectures whereas teachers should spare their time to design video lectures themselves or find the related ones from various sources.

Although flipped classrooms have been applied in STEM (science, technology, engineering, and math) so far, not so many examples can be seen in social sciences, especially in language classes. However, Obilișteanu (2009) asserts that productive language skills such as writing require more in-class practice and so more class time. As flipping classes creates more in-class time, it can be applied in lecture parts of writing classes. The purpose of this study is to examine the effects of different modalities of flipped video lectures of English writing classes on students' writing achievement, and to analyze the impact of interplay among students' learning styles, learner autonomy levels, and critical thinking disposition levels on their

writing scores in a flipped design in the intensive English program at a state university where the medium of instruction is English.

1.1 Statement of the problem

In language classes, students need more in-class practice time for productive skills, one of which is writing (Obilişteanu, 2009)**.** As in-class time is generally allocated to lecturing, students do not become actively engaged in the writing process in language classes, which results in insufficient development of writing skills. Moreover, writing skills reveal themselves best in production tasks that require learners to harmonize different language skills such as grammar, vocabulary, and syntax (Raimes, 1987). Therefore, students need to practice writing more and more through production tasks (Obilişteanu, 2009). Apart from this, up to now, only traditional classes and flipped classes have been compared, and almost no details regarding the design of videos have been given in the flipped classroom studies (Day & Foley, 2006; Love, Hodge, Grandgenett & Swift, 2012; Talbert, 2014). However, when the videos assigned to learners to study at home are designed by using different modalities including animations, diagrams, narrations, or on-screen texts, they may bring about different results and learning gains in educational settings. In order to create a sound multimedia learning environment, some theories and assumptions such as Paivio's (1978) dual channel assumption, which assumes that human beings have two channels to process the input and these are visual and auditory channels, Sweller's (1988) cognitive load theory, which advocates that in order not to overload the visual channel, visual elements should be presented with auditory ones, not with other visual inputs, and Mayer's (2005) cognitive theory of multimedia learning, which encompasses the dual channel assumption and the cognitive load theory, and which

asserts that learning is an active process involving selecting, organizing, and integrating the information into prior knowledge, should be taken into account so that the effects of these on learning gains can be examined thoroughly. However, most flipped design studies do not give any details regarding the design of videos which are used in multimedia learning environments in flipped classrooms. Moreover, as the flipped design allows multimedia materials to be studied outside the classroom through videos, some factors that are assumed to influence the computer-assisted learning process such as learning styles (Cordell, 1991), learner autonomy (Godwin-Jones, 2011), and critical thinking (Mortensen & Nicholson, 2015) should also be analyzed, which has been quite rare in the flipped classroom studies so far (Bergmann & Sams, 2012; Strayer, 2012; Sarawagi, 2014).

1.2 Significance of the study

Most flipped classroom applications can be observed in STEM courses (Foertsch, Moses, Strikwerda & Litzkow, 2002; Lage, Platt & Treglia, 2000; Baepler, Walker & Driessen, 2014; Strayer, 2012). However, language learning also seems quite suitable for flipping. Learning to write a well-organized essay requires practice. For practice, students need more in-class time. In language teaching and learning, writing and speaking are considered productive skills whereas reading and listening are considered receptive skills because learners receive the language produced by others while reading or listening (Obilişteanu, 2009). Given that, as learners are required to produce sentences while writing, they need time to practice more, which makes the flipped classroom a good alternative for writing classes because by having video or online lectures as homework in a flipped classroom design, both students and teachers gain time for in-class activities. Students can write essays in class and get

immediate feedback from teachers while writing, and this may result in their improvement of writing skills. Furthermore, flipping writing classes paves the way for the implementation of the present-practice-produce (PPP) language teaching methodology more effectively in writing classes. Since the present stage occurs at home in the flipped design, students have more time to practice and produce pieces of writing in the classroom. That is why writing and flipped classrooms are thought to be related. Measuring the effects of flipped classrooms in writing is the aim of this study.

Up to now, in most of the flipped classroom studies, traditional classrooms and flipped classrooms have been compared based on pretest-posttest scores (Talbert, 2014; Moravec, et al. 2010; Lage, 2002). In a few studies (e.g. Chen & Wu, 2015), different versions of the flipped classroom have been designed. Therefore, in the present study, six different versions of video lectures were designed. Additionally, learner autonomy levels, learning styles, and critical thinking disposition levels of the participants were measured to examine whether these factors affect learning gains, and how students' writing achievement and different modalities of flipped video lectures interact was analyzed accordingly.

CHAPTER 2

LITERATURE REVIEW

2.1 Blended learning

The definition of blended learning is fuzzy, but it is assumed by VanDerLinden (2014) to be a part of distance education, and it is simply described as converting in-class seat time into activity time by means of online-delivered activities. VanDerLinden also points out that blended learning is a continuum with face-to-face class activities and online computer-based activities on each end. More comprehensively, Garrison and Vaughan (2008) see blended learning as an optimal integration of both face-to-face and online/distance learning, each of whose strong aspects form a better learning environment complying with the objectives and the setting. According to Garrison and Vaughan (2008), there are various factors affecting the objectives and the setting such as resources, requirements of disciplines, and communication modes in blended learning. Lapp, Fisher and Frey (2014) define it as an instructional concept through which students can have access to online materials via their computers and control their own learning pace. This is why blended learning is assumed to have great potential for future educational settings since learners feel they are in the charge of their own learning process (Lapp et al., 2014). However, they also argue that there is no clear-cut definition and rule-based application of the blended learning which is appropriate for all learners.

In order to create a clear framework of how blended learning progresses, Güzer and Caner (2014) divided blended learning into three periods such as definition period, popularity period, and present period. In the definition period (2003- 2006), various definitions have been formed, but the most cited definition

belongs to Osguthorpe and Graham (2003) who argue that blended learning is a mixture of traditional in-class activities and online activities; however, it is not just presenting a book page online to learners. According to Zhonggen (2015), blended learning is more than a basic mixture of traditional and online activities since a blended learning environment involves various factors such as learning environment, cognitive mechanisms, learning affective factors, learners, and teachers. Similarly, Garrison and Kanuka (2004) argue that blended learning is not a simple process. On the contrary, it has multiple facets affecting the whole learning process. Garrison and Kanuka (2004) focus on the types of presence such as social, cognitive, and teaching presence in a blended learning environment. Moreover, some social interactions, cognitive learning objectives, and the way teachers give instruction should be organized properly. Only by doing so can the blended learning environment be managed successfully (Garrison & Kanuka, 2004).

The next period of blended learning is the popularity period (2007- 2009) (Güzer & Caner, 2014). In this period, the way blended learning is perceived and how effective it is were the main topics because the increasing trend in the use of blended learning continued in this period. It was emphasized that the blended learning environment should be designed meticulously by first analyzing the learners, the content, and the materials so that students may favor the blended learning environment and to accomplish higher level of learning objectives,

The last period is called the present of blended learning (2010- 2012). In this period, Güzer and Caner (2014) argue that blended learning has become more interactive thanks to different modalities of online delivery tools. As for the future of the blended learning, it is suggested that teachers should encourage students to actively participate in this type of environment so that a more successful and efficient

learning process can be formed (Güzer & Caner, 2014). The blended learning should be designed properly because only in this way may it become a good combination of advantages of both traditional and online learning environments.

Similarly, according to Eryılmaz (2015), blended learning should utilize the positive aspects of both traditional and online lessons. Eryılmaz asserts that blended learning is advantageous in terms of time and location flexibility, and student interaction both inside and outside the class. As for advantages of blended learning, learner control of online materials, the opportunity to study or listen to materials again, and the integration of online materials with class activities thanks to meaningful interactive in-class learning environment can be put forward. Al Musawi (2011) also lists the benefits of blended learning as flexibility, accessibility, and feasibility. That is, learners can have access to the materials produced with feasible techniques whenever and wherever they want. On the other hand, Eryılmaz also emphasizes that learners that are in front of computers may become isolated, and therefore lose their motivation to achieve more since they cannot have face-to-face interaction with their peers very often. Thus, blended learning environments should be designed purposefully and carefully.

As far as the design of blended learning environment is concerned, Al Musawi (2011) suggests what he calls his "ASSURE" model. In other words, blended learning designers should analyze pedagogical contexts, select proper instructional methods, select appropriate resources and technology, use these resources, request interaction from students, and evaluate what has been achieved. Whereas Al Musawi takes the whole blended learning process as a single concept, Graham (2006) categorizes blending into four levels: activity level, course level, program level, and institutional level. For each level, when some elements of face-to-

face learning and online learning are integrated, that activity, course, program or institutional environment becomes blended. Moreover, Osguthorpe and Graham (2003) assume that blended learning is preferred by teachers because it offers pedagogical richness, easy access to information, interaction, personal agency presence in the learning environment, cost effectiveness, and opportunity to revise the material.

According to Kaur (2003), blended learning includes three components: learning environment, media, and instructional component (Kaur, 2013). In blended learning, the learning environment can be either synchronous or asynchronous. That is, every learner may be exposed to the same material simultaneously on an online platform or they can examine the material in different time slots on the same online platform. Various types of media such as videos, online forums, e-mail groups, and learning management systems can be utilized in a blended leaning environment to deliver the content. In the instructional component, the most appropriate instructional strategies to achieve the specific learning objectives should be selected.

Taking these components into consideration, various models of blended learning can be identified. Shaidullin, Safiullin, Gafurov, and Safiullin (2014) present six main models of blended learning. The first model is the face-to-face driver model in which there is mostly direct interaction with teachers. This model assumes online learning is an addition to traditional classes at school. In the rotation model, class hours are distributed, and online materials can be studied with or without teachers. However, teachers usually give remote support to their students in the flex model. If students have access to the online material in computer labs at school and if teachers help them during this process, this is referred to as the online lab model. If students become autonomous and can choose whatever they want to

learn themselves, then it means that they are engaged in the self-blend model. The last model is the online driver model in which most of the materials are delivered online to learners.

Based on this categorization, Shaidullin et al. (2014) put forward that the flipped classroom can be categorized under the second type (rotation model) since students are expected to get ready for classes at home as a result of distributed lesson hours. Shaidullin et al. (2014) state that as students get prepared for the theoretical parts of the class at home and use in-class time to build up their skills, the flipped classroom is a subtype of blended learning because there is a combination of online and face-to-face learning environments in flipped classrooms.

2.2 What is flipping or flipped classroom?

Calabro (1972) states that the relationship between learning as a process and learning environments is gaining more and more importance. It is stated that the learning environment should be a flexible one such as an open loft classroom (classroom without walls), and students can/should go beyond the traditional lecturing in these classrooms through individualized learning activities.

Over the years, this going beyond the traditional lecturing has been adjusted, and now, with new advances in technology, a new kind of flexible learning environments has emerged: the flipped classroom. The mantra of flipped classrooms is similar to that of Calabro's. Flipped designs also support the idea of going beyond the traditional lecturing in a flipped order. That is, in flipped learning, as Szafir and Mutlu (2013) state, students are expected to study (online) lecture videos and tutorials on their own flexible schedule at home, and come to the classroom with already-gained background information, which they utilize for in-class hands-on or

experimental activities and problem-solving tasks. That is, students in flipped classrooms probably need to change their study habits or daily routines in order to have more out-of-class time so that they can study video lectures before coming to class. At the same time, teachers need to spend their out-of-class time to prepare video lectures or to search ready-made ones. By means of these changes in students' and teachers' time allocation, classroom time is devoted more to answering questions that come from students, practice, focusing on problem sets, and getting support from the teacher in flipped learning. That is, the traditional homework becomes school work in a flipped learning environment. On the other hand, this notion of assigning texts for home reading before the class time has been around for decades. Nevertheless, what makes the flipped classroom different is "the regular and systematic use of interactive technologies" (Strayer, 2012). To clarify, a flipped classroom offers technology-enhanced multimedia learning environments through lecture videos to students before they attend face-to-face classes, which makes it different from reading paper-based textbooks before coming to class.

According to Flipped Learning Network (2014), the four pillars of FLIP are "flexible environment, learning culture, intentional content, and professional educators." As online lectures are to be accessed from home, a flexible environment is created for both students and teachers. It sees learners as the center of learning rather than teachers as the only source of information. Teachers use intentional content in flipped classes to increase their students' higher thinking abilities and to enable them to make connections between online classes and in-class activities easily. Professional educators have more demanding roles in flipped classrooms as they must implement the model smoothly and efficiently. However, not all flipped designs have to include all of these pillars. These components can be adapted or

eliminated depending on the learning context, learner needs, and learner characteristics.

2.3 Why flipping?

Some of the researchers (Bergmann & Sams, 2012; McGivney-Burelle & Xue, 2013; Sarawagi, 2014; Talbert, 2014) base the support for flipped learning on Bloom's taxonomy of cognitive learning domains (1956). That is, it is argued that by assigning lecture videos as homework and asking students to study them at home, the first two stages of revised Bloom's Taxonomy remembering and understanding occur at home, and then in the class, the remaining four stages that require high-order skills (applying, analyzing, evaluating, creating) are practiced thanks to exercises, problem sets, and hands-on activities.

Flipping can also be associated with one of the language teaching methodologies present-practice-produce/ PPP (Richards & Rodgers, 1986). According to this methodology, in the first stage, the instructor presents the target structure or material to learners, which is expected to occur while learners are studying video lectures at home in the flipped design. The second stage includes various activities enabling learners to practice what they have learnt in the first stage, and this stage overlaps with the in-class time activities in the flipped design. The last stage of PPP methodology is production where learners are required to produce the target items or structures in writing or speaking. In the flipped design, this last stage of PPP also overlaps with the in-class time during which learners are encouraged to harmonize what they have learnt and to transfer it into a production task.

Another advantage of flipping is that flipping allows students to pause and rewind the instruction (Bergmann & Sams, 2012). That is, if students cannot understand a point in the video in which the instructor lectures, they can pause and replay it again and again. Completing the lectures at home, students become ready for in-class tasks, and so teachers do not need to stand in front of the class and lecture anymore, which increases the amount of student-teacher and student-student interaction. Moreover, thanks to flipping, teachers are no longer seen as the most knowledgeable or experienced person on the stage since they can circulate and talk with students in the classroom (Sankey & Hunt, 2013).

On the other hand, in a study comparing the traditional classroom and (full) online classroom, the results show that most of the students like the combination of face-to-face contact and online component. Furthermore, most of the students reported that they felt isolated in full online courses (such as distance education). In face-to-face interactions, however, the students enjoyed sharing their ideas with their teachers and peers, and taking immediate feedback from the teacher (Ryan, Carlton, & Ali, 1999). That is, the in-class component of flipped classrooms is important for students because they need a session of face-to-face interaction in addition to the online or computer-based component.

Additionally, it is argued that students need both active and passive learning opportunities; however, with limited class time, passive and active learning compete with each other. Covering the topics in the syllabus in class (passive learning) leaves little room for active learning in classrooms (Love, Hodge, Grandgenett, & Swift, 2012). All of these findings support the usage of the flipped classroom, which is a combination of online video lectures and face-to-face class time during which active learning is assumed to take place thanks to various hands-on and problem-solving

tasks that are conducted with teacher guidance.

On the other hand, in flipped class designs, instructors are advised to give pre-class quizzes before in-class time so that they can check which students have studied the video and answered the questions, and which students have problems related to some specific parts in the videos (Moravec, Williams, Aguilar-Roca, & O'Dowd, 2010). This allows for more individualized instruction by accommodating or tailoring in-class tasks as the instructor knows each student's needs.

2.4 Flipped classroom cases

Although flipping has its roots in the 1970s (Calabro), Baker (2000) was the first professor who attempted to implement the flipped design in his undergraduate communication course in 2000. In order to encourage his students to analyze the information presented to them, he sent the PowerPoint presentations to his students and asked them to study the slides before coming to class. At the high school level, as Tucker (2012) states, flipping was first applied by two chemistry teachers Aaron Sams and Jonathan Bergmann in 2007. Bergmann and Sams, trying to reteach the topic for absent students, started to record their lectures and post them online. Later, they realized that they could create more in-class time by posting online lectures. However, it can also be seen that the term "inverted classroom" was used by Lage, Platt, and Treglia instead of "flipped classroom" in 2000, i.e. prior to 2007. One more term for flipping is Learn Before Lecture (LBL) (Moravec, et al., 2010). Although the same concept has three different names, it does not have that much long history. That is, flipped classroom is a recent model in education.

2.4.1 Flipping in math courses

In 2012, flipped model was used in Applied Linear Algebra course with 55 participants at the undergraduate level (Love, Hodge, Grandgenett, & Swift, 2012). It was found that the students in the flipped classroom got higher grades in the exams during the terms; however, in the final exam, the grades of the students in flipped and traditional classrooms were similar. In the study of Love et al. (2012), students reported a positive attitude towards flipped learning in the interviews that were done with them.

McGivney-Burelle and Xue (2013) suggest that the rationale behind flipped classroom lies in mastery learning, and it is associated with Bloom's taxonomy of cognitive learning domains (1956). That is, comprehension and knowledge are completed at home in a flipped environment. On the other hand, application, analysis, synthesis, and evaluation take place in the classroom. They examined this rationale in a flipped calculus course. In this course, a single unit was flipped at a private university in two sections, and WeBWorK (an online homework system) was used to share lectures, videos, and e-textbooks with the students and to give an entry quiz before each class session. Clickers were used to record the attendance and video-studying time. It was found that the students in the flipped classroom got better scores than the students in the traditional classroom, and enjoyed the lessons more in the flipped classroom. However, some of the students complained, saying that they were unable to ask questions to the teacher while viewing the lectures at home.

Talbert (2014) also refers to Bloom's Taxonomy as the rationale behind the flipped classroom. In his study, Talbert reported that the students in the flipped linear algebra course had achieved higher success than the students in the traditional classes had. Talbert suggests that the videos of lectures should be short and that pre-

assignments (before in-class time) should be given and graded. Moreover, in another study in which three linear algebra topics were inverted, Talbert found that 80% of students were satisfied with the flipped model, and more in-class time for peer instruction was reported in this study.

Flipping was implemented in another related field, statistics. Strayer (2012) studied the effect of flipped classroom on cooperation among the students, and aimed to design productive learning environments by taking the results of the study into consideration. There were 23 undergraduate students in the introduction to statistics with a flipped class, and it was found that the learners in the flipped classroom were more inclined to cooperating with their peers. However, students reportedly had difficulties in connecting the lectures that they studied at home with in-class activities. Based on these results, Strayer (2012) argues that flipped classrooms should not be preferred for introductory classes and that teachers should try to encourage students to make meaning from the in-class tasks and activities.

There are some limitations in some of the studies that were carried out in math courses. In McGivney-Burelle and Xue's study (2013), a focus group interview was done, and only 4 students out of 261 students were interviewed. If they had interviewed with more students, maybe they would have found some students who had negative attitudes towards flipped learning. Talbert (2014) tried to observe the effect of flipping on the final exam, but when the classroom was inverted or flipped, the final exam was only three days later, which is a short time period to observe the results of new implementation. In Strayer's study (2012), the students were not randomly assigned.

2.4.2 Flipping in science courses

When it comes to science, many cases of flipping can be seen. It has been argued that flipping the classes in physics or calculus classes is more feasible and practical because in online lectures, representations of abstract concepts in physics or calculus can be provided to the students (Van Heuvelen & Zou, 2001, as cited in Sadaghani, 2012). Moreover, Wan (2014) maintains that teaching science in flipped classrooms is a logical choice because there are various ways of teaching science thanks to technology.

The effect of flipping was investigated in an undergraduate introduction to biology course (Moravec, et al., 2010). In this study, it is proposed that the Learn Before Lectures (LBL) (this is how they referred to flipped classes) should be combined with interactive in-class activities. In 2007 and 2008, they used traditional classroom teaching in biology classes; however, in 2009, PowerPoint slides and online worksheets were prepared and an LBL model was applied. The slides were ready two days before the in-class time. Moreover, pre-class assignments were given to students because Moravec, et al. (2010) argued that they could detect what the students had or had not learnt before the in-class time thanks to pre-class assignments so that they could apply JiTT (Just-in-Time Teaching) in their classes. Thanks to JiTT, teachers can know what students have understood and in which parts students have problems so that they can tailor the classes according to students' needs. A problem in flipped classrooms is that students may not study online lectures before coming to class. In this study, they dealt with this problem by giving students a small reward (1% of their final grade as a bonus) in return for their studying online lectures. In exams, the LBL students showed higher performance. Furthermore, LBL-related questions were put into the exams to measure the effectiveness of the

LBLs. It was also found that LBL students had a higher performance on LBL-related questions, which shows the learning gains coming from LBLs. Moreover, 80% of students stated that LBLs were supportive in their learning.

In an undergraduate chemistry course, the effects of flipped classroom have also been researched in by Baepler, Walker, and Driessen (2014). The course offered in spring 2012 was the control group, and the other two sections offered in 2013 were experimental. The total number of students was 1,100 in three sections. The students in the control group attended the lectures in the amphitheatre 150 minutes per week. On the other hand, the students in experimental groups spent only 50 minutes per week in the active learning classroom (ALC- Computer Lab). Although the time spent in the class was less for the students in flipped classrooms, they had either higher or equal success compared to traditional classes in the two sections in 2013.

The first study measuring the development of students' critical thinking in a flipped classroom was conducted by Mortensen and Nicholson in 2015 in an equine science course. The whole semester was flipped in 2013 and 2014, and the students in the flipped classroom were asked to take Cornell Critical Thinking Test (CCTT) as the pretest and the posttest. The students in the flipped instruction got higher scores on the exams, and they also improved their critical thinking skills more from pretest to posttest. Therefore, Mortensen and Nicholson (2015) concluded that the flipped design had improved the students' critical thinking skills in a science course.

2.4.3 Flipping in computer sciences courses

There are several cases of flipped classrooms in computer science courses. In 2000, a computer science course was flipped by Foertsch, Moses, Strikwerda, and Litzkow

(2002). Their motto was “Using distance education to reduce distance between students and instructors.” To provide online component to the students, software called Eteach was used, and TeamLabs (Instructor supervised) were arranged. At the end of the semester, some of the students were interviewed. In these interviews, 64% mentioned many benefits of the flipped classroom. They reported that they could follow the online lectures at their own pace and at home during the time that they were more attentive, and the schedule for studying online videos was flexible. On the other hand, some disadvantages of flipped classrooms were also voiced by 365 of the students. They complained that they were not able to ask the teacher questions during online courses; replaying online lectures discouraged them from taking notes; the more formal way of traditional lectures would have made some students take them more seriously. Overall, 59% of the students expressed positive attitudes towards online lectures.

In another flipped learning environment, Facebook was used to create an online platform among students (Li, Lou, Tseng, and Huang, 2013). It was a computer science course at a university in Southern Taiwan. As checking Facebook many times throughout a day is quite usual for teenagers of this age, the participation level and learning satisfaction expressed by the students were high. All course-related files were shared on Facebook before the in-class time, and the students were required to write feedback about the online part. However, there was no significant difference between flipped and traditional classes in terms of learning effectiveness.

A learning management system, Moodle, was also used in flipping in a computer science course. Granur and Hüttel (2014) hypothesized that flipping would enhance deep and active learning. Fifteen sessions were uploaded to Moodle, and peer reviews were required in these sessions. In-class time was allocated to practical

sessions and problem sets. Four interviews with the students were organized, and they reported that the stop, pause, go back, go forward options in online videos helped them a lot. However, they complained about not being able to ask the teacher questions.

Horton, Campbell, Craig, Gries, and Zingaro (2014) aimed to determine whether a flipped classroom enhances learning and whether flipping affects the pass and attendance rates. In 2012, they offered a traditional undergraduate programming course to the students. In 2013, the flipped version was used. In the traditional one, the students attended three one-hour lectures per week, completed lab assignments and took a midterm and final exam. In the flipped class, on the other hand, the students had three hours of in-class time and studied a one-hour video every week. They also had short online exercises, video quizzes, and midterm and final exams. There were 1,307 participants in the study, and there was no significant difference in terms of their prior knowledge related to computer skills. Although there was lower attendance in the flipped classroom, and the students in traditional classroom reported that lectures are more helpful than online videos, the students in the flipped classroom (average score =74.3%) outperformed the students in the traditional classroom (average score = 66.2%) on the final exam. On the other hand, the students in the flipped classroom reported less enjoyment in the classes because they had many more assignments than the students in the traditional classroom did.

In another undergraduate computer science course, Sarawagi (2014) studied the students' attitude towards flipped classroom. Sarawagi (2014) based the flipped classroom application on Bloom's Taxonomy. In the study, he asserted that only the three lower levels of Bloom's Taxonomy take place in traditional classrooms, which leaves insufficient class time for the top three levels of Bloom's Taxonomy. Software

named Visual Logic was used for online lectures. There were 26 students in the class. It has been reported that 30-50 minutes was gained by offloading the class content to outside the class by flipping. Chunking the online video lectures, that is, preparing short videos, was suggested by Sarawagi (2014). Surveys were given to the students both at the beginning and at the end of the semester, and 42% of the students had positive attitudes towards flipped classroom at the beginning. At the end, this percentage went up to 61%. The percentage of the students who preferred the flipped classroom rather than traditional classroom rose from 71% to 95%, which is a quite high percentage.

A similar increase in the students' positive attitudes at the end of the semester was observed in Day and Foley's study (2006), which was conducted in a human-computer interaction course with senior-level undergraduate students. In this study, the students in the flipped classroom outperformed the students in the traditional classroom in all assignments and on the exams.

2.4.4 Flipping in economy and business courses

In 2000, Lage, Platt, and Treglia inverted an economics course, which they referred to it as an inverted classroom. Their triggering point was that traditional lecturing might not satisfy needs of all students in a class. They also put forward that there should be a perfect match between learning style and teaching, so they analyzed the learning styles of the students in the economics course, and started to implement the inverted classroom with goal of satisfying every learner's needs. Before each in-class time, the students were asked whether they had any questions or not. Additionally, they assessed students' perceptions. Instructors reported that students enjoyed the course because they had time for one-to-one interaction in class. The students stated

that they would prefer the economics courses in inverted classrooms. Female students reported more satisfaction than males. Instructors, however, complained about preparing materials, as this can be time-consuming.

In Fall 2012, an engineering economics course was also flipped by Lavelle, Stimpson, and Brill. In flipped classes, a more accelerated schedule was offered to the students. Online lectures were 45-65 minutes, and in-class time was allocated to active learning (the first 20-30 minutes) and answering students' questions (the last 20-30 minutes). For grading, a midterm exam and a final exam were given. Although students gave positive feedback, no significant difference between the grades of the students in the flipped classroom and the ones in the traditional classroom was found. Even, the students in the flipped class got more non-passing grades. As Lavelle et al. (2012) suggest, one reason of this failure can be the accelerated schedule and long online lectures.

Findlay-Thompson and Mombourquette (2014) conducted another study in an introduction to business administration course in Fall, 2012. The course had three sections, all of whose instructors were the same, and two sections were traditional classes whereas one section was flipped. Moreover, based on a judgment sample, seven students were interviewed about the flipped design. The exam scores showed that no significant difference between the grades of the flipped class students and the grades of traditional class ones was found. However, students' attitudes towards the flipped class were found to be positive.

2.4.5 Flipping in social sciences

There are few studies about flipped classroom in social sciences, humanities, and language courses. Kvashnina and Martynko (2016) also report a limited number of

studies on the use of flipped classes in English as a Second Language (ESL) teaching.

Kim, Kim, Khera, and Getman (2012) arranged three flipped classroom environments. The courses were engineering, humanities, and sociology. Different techniques were applied in each course, and the study focused on how instructors apply flipping, the students' perceptions, and suggestions for the design of flipped classrooms. Forty-eight students were registered for the sociology class whereas there were only 15 students in the humanities course. In the sociology class, out-of-class work was assigned as group work, and in the humanities course, discussions were held during in-class time. In the end, students' perceptions were analyzed in four categories: teaching presence, which was defined as "instructional orchestration appropriate to the learning environments", social presence as "encouraging collegial settings", learner presence as "self- and co-regulation of learning", and cognitive presence as "knowledge building involving critical and creative thinking" (Kim et al., 2012, p. 39). In terms of the teaching presence, the students were satisfied because they thought that the teacher arranged all the activities and informed them about learning goals. In terms of the social presence, the students reported that flipping enhanced interaction and collaboration among them. As for the learner presence, it was found that the flipped design helped the students to regulate and monitor their own leaning processes. In terms of the cognitive presence, the students reported that in-class activities improved their problem-solving skills.

In 2013, Harvey flipped her elementary Latin class. In the course, students were expected to translate Latin texts to English, so they needed to learn vocabulary and grammar structures. Thus, the instructor prepared videos including target vocabulary and grammar structures, and pre-class quizzes with deadlines were given

to the students. Harvey (2014) compared the exam results with the exam results of the previous year's students, who had listened to traditional lectures. The chapters covered in 2012 and 2013 were the same and from the same textbook. In the first exam, a significant difference between the grades of the students in the flipped design and the ones of the students in the traditional class was not found. However, as the topics accumulated and the amount of content that was tested in the exams increased, the grades of the traditional class students fell, and in the second and third exams, there was a significance difference between the scores of flipped design students and traditional class students.

Flipping was implemented in an English course in a post-secondary institute in Hong Kong by Wong and Chu in 2014. It was conducted in the academic year 2013-2014 with 68 students. The students in the flipped classroom were asked to study short videos before in-class time and take online exercises whose results were recorded. There was also a control group, that is, a traditional classroom. The students in the traditional classroom studied the videos in the classroom, and then did the exercises. At the end, both groups were given a post-test (including multiple-choice and fill-in-the-blanks questions) about the videos. In this context, they aimed to determine the effect of studying with videos (listening- flipped) on English speaking skills. The results show that the students in the flipped classroom had higher performance than the ones in the traditional classroom. They also stated that studying videos before class had a positive effect on their speaking skills and they came to the class more motivated to discuss the video-related cases.

In 2016, an undergraduate English for engineering course was flipped by Kvashnina and Martynko at a university in Russia. Forty-two students participated in the study. The flipped groups had higher scores than the control group did in the final

exam including listening, reading, writing, and speaking tasks, and also the participants in the flipped classes were found to have positive attitudes towards integration of technology in language classes via flipped classroom.

Although more findings are needed to analyze the effects of flipped classrooms in different contexts, it can be easily observed that flipping is widely used in math, science, computer science, and economics courses. However, few studies can be found in social sciences courses, humanity courses, and language courses. There is a particular scarcity of studies on the effects of flipped classroom in second language learning contexts (Engin, 2014). Thus, more studies are needed in this field to analyze the whole picture of flipped classrooms.

2.5 Summary

To come up with a well-designed flipped classroom, some issues should be taken into account. Previous studies provide some insights about designing flipped classrooms. First, in order to prevent absenteeism in flipped classes/online components, log-in records or video-viewing times should be recorded. Moreover, as Horton and Campbell (2014) stated, a small reward is enough to ensure attendance. On the other hand, in order to guarantee JTiT (Just-in-Time Teaching), entry quizzes or pre-quizzes before in-class time should be given to students so that what they have learnt when they study video can be assessed. Based on the results, the teacher can modify the in-class activities. For instance, in Lage, Platt and Treglia's study (2000), the students did not take any entry quizzes or pre-class assignments before they came to class, which also makes attendance checking difficult. The students were simply asked whether they had any questions or not. However, some of the students may not volunteer to ask their questions, which may be interpreted as a sign of not having

attended the flipped classes. To check whether students had studied the videos or not, another technique was suggested by Bill Tucker (2012). He asked his students to come to the classroom with a question related to the video content. On the other hand, instructors should explain why they flip their classes and teach students how to study videos. If students do not study the videos, instructors should not summarize them in class (Raths, 2014).

In previous studies, most students complained about not being able to ask questions while studying videos. In order to eliminate these complaints, the flipped model should be explained to the students in detail before the application. And, the fact that they will have more in-class and face-to-face time to ask questions thanks to flipped classes should be clarified.

In Foertsch et al.'s study (2002), there was a limitation about the attendance in flipped classroom. That is, only 75% of the students studied all the videos, but 86% of the students studied videos that were related to lab sessions only, not all of them. Thus, it can be concluded that in order to keep attendance to flipped classes higher, the videos and in-class activities should be related. In Horton, Campbell, Craig, Gries, and Zingaro's study (2014), the students in the flipped classroom had more assignments than the ones in the traditional classroom, which made the process more difficult. Therefore, it can be concluded that overburdening flipped classroom students with more assignments can be risky. Moreover, the instructors of the control and the experimental groups were not the same, which decreased the reliability of the study. On the other hand, in Lavelle, Stimpson, and Brill's study (2012), the lectures in the flipped classes were in an accelerated, compact schedule, which may result in maladaptation to the system for the students.

Some more specific design suggestions could also be found in the previous studies. As Wan (2014) suggested, the length of online videos should be short (not more than 15 minutes). Moreover, chunking the content in videos is quite helpful to ensure students' understanding (Sarawagi, 2014). As Strayer (2012) emphasized in his study, flipping may not be preferred for introductory classes and for the first trial, less radical flips can be tried. That is, instead of flipping the whole syllabus, 2-3 topics or units should be flipped. Strayer (2012) also claims that in-class times in flipped classrooms are more intensive and fragmented (lots of problem sets, practices, etc.), which increases the unpredictability in classes. And, it can create difficulties for students, so while designing in-class activities, their correspondence with online lectures and transitions among them should be examined and arranged very carefully. Sankey and Hunt (2013) argue that flipped videos should go beyond just converting the traditional lectures into videos, and to achieve this, interactive sources and multimedia designs should be utilized.

Some researchers focus on the in-class activities part of the flipped classrooms, and they suggested that what makes a flipped classroom effective is its in-class activities. For instance, in a study that was made in Taiwan in a computer and network course, Chen, Wang, Kinshuk, and Chen (2014, p. 18) questioned whether only FLIP –"Flexible Environment, Learning Culture, Intentional Content, Professional Educators"– is enough. They tried to find whether positive results are guaranteed when all four pillars of FLIP exist. In trying to answer this question, they concluded that FLIP needs an extension such as FLIP-PED, where PED stands for "Progressive Networking Activities, Engaging and Effective Learning Experiences, and Diversified and Seamless Learning Platforms". For instance, Goh (2012) interviewed experts, and field work was conducted as in-class hands-on tasks in a

flipped materials technology course in order to increase the learner engagement and to create a meaningful learning environment for students. It can be concluded that what creates a difference in flipped learning is not assigning online lectures to home, but designing meaningful in-class activities for students. Through these activities, students should make a progress in contextualized and meaningful learning environment and gain engaging learning experiences. Another case study (Lawrence, 2013) also emphasizes the importance of the link between the video lecture provided and in-class tasks. The more they are linked, the more students engage. Thus, it can be concluded that in-class activities should be built on the content of online lectures. Additionally, it is suggested in this study (Lawrence, 2013) that a variety of activities such as brainstorming, students' PowerPoint presentations and discussions, individual or paired quiz, role play, team matrix, critical debate, case study, group investigation, think-aloud pair problem solving, creative scenarios and simulations can be completed in class in order to transfer the video content to hands-on tasks. At the end of this study, students stated that they would prefer flipped classes because flipping lets them interact and collaborate more.

Although some of the researchers focus on the content and design in flipped classrooms and emphasize that what makes flipped classrooms popular nowadays is the design of the online lectures and the in-class tasks assigned to students, details about the designs can hardly be found in most of the studies. Only in a few studies, explanations about the design can be found. For example, in some studies some software such as Blackboard or Eteach and some screenshot tools such as Jing or Mediasite were used (Horton et al., 2014; Sarawagi, 2014; Lavalle et al., 2013; Foerstch et al., 2002; Wong & Chu, 2014; Strayer, 2012; Gehringer & Peddycord III, 2013; Day & Foley, 2006) However, how the content of the online lectures was

designed and whether any kinds of visual or auditory materials were provided were not clearly stated. On the other hand, there is little explanation about the in-class tasks and their content, which creates ambiguity within the design.

In the study of Kim et al. (2012), some design principles and details were proposed; however, those principles were mostly related to how to integrate social, cognitive, learner, and teaching presence. Some more design principles regarding the proper technology integration in a multimedia learning environment should have been given. Even though the study was an interdisciplinary one in terms of flipped designs, its focus was limited to the types of presence. In Harvey's study (2014), lecture presentations and quizzes were presented on BlackBoard software to the learners. However, contrary to Strayer's (2012) idea about systematic usage of technology in flipped designs, Harvey (2014) gave hardcopy text versions of video lectures after the students studied the videos, which may have prevented the researcher from seeing the direct effects of the video lectures on the students' Latin language development. On the other hand, in Wong and Chu's (2014) study, the control group also studied the same videos which flipped classroom studied before the class time in the classroom, which might have deviated from the basic rationale stating that while flipped classrooms study lectures videos at home, traditional ones should continue taking in-class lectures given by an instructor.

2.6 Academic writing in English as a foreign language

According to White and Arndt (1991), writing is not a simple process requiring just spelling the words correctly and putting words together. On the contrary, writing is a process that involves high-level cognitive thinking processes. Even in their native language, people have difficulties putting their ideas together coherently although

they have broad knowledge of language structures (White & Arndt, 1991). When it comes to writing in a foreign and second language, the task becomes much more difficult even though writing is mostly based on cognitive processes, not language structures because foreign or second language learners are required to write according to a different schemata of a different language which is unfamiliar to them, and this makes the cognitive processes involved in writing more painful (White, 1988). Thus, Zamel (1976) concludes that the aim of foreign or second language writing courses should be to teach students how to compose their ideas, not the specific language structures because writing a composition or an essay does not only mean producing grammatically correct sentences. On the other hand, Emig (1977) asserts that four language skills -listening, speaking, reading, and writing- should be paired: listening-speaking and reading-writing. Emig (1977) also puts forward that although the former pair does not require systematic and formal instruction, the latter pair definitely does so.

As for the writing instruction in a second or foreign language, two approaches have become prominent: writing as a product and writing as a process.

2.6.1 Writing as a product

This approach is also called structured writing (Gomez, Parker, Lara- Alecio & Gomez, 2006). In this approach, writing is largely seen as using appropriate language structures, vocabulary, and cohesive devices in a syntactically correct order. That is, the writing instruction is language focused, and accuracy is emphasized (White, 1988). Pincas (1982) argues that learning to write has four stages: familiarization, controlled writing, guided writing, and free writing. On the other hand, White (1988) name these stages of the product approach as study the sample, modify the elements,

and produce a similar text. Although the stages are named differently, a typical writing based on the product approach involves students' familiarizing themselves with / studying a specified text written for teaching purposes, producing similar simple sentences or a piece of writing (controlled/guided writing and manipulating the elements), and then writing a similar text by changing just some elements, but not the structures (free writing – producing a parallel text) (Pincas, 1982; White, 1988). Furthermore, Gomez et al. (2006) state that students are required to write about a given topic by the teacher as a controlled writing activity, and then to correct their grammar errors based on the accuracy-focused feedback that they take in a product-based writing class. According to Zamel (1976), the supporters of this approach see writing as grammatical manipulations of model texts, sentences, or paragraphs. The writing as a product approach was widely adopted in language teaching until the arrival of the communicative approach (White, 1988).

2.6.2 Writing as a process

The second prominent approach is writing as a process. It is also called free writing by Gomez et.al. (2006). In this approach, writing is considered as a process involving various cognitive skills. Moreover, Emig (1977) states that writing is a tool for learning, not just a means to show learning; therefore, it should be considered as a whole process. Flower and Hayes (1981) state that the writing process includes different thinking processes that the writer organizes properly while composing his/her ideas. Badger and White (2000) add that writing in this approach is more associated with linguistic skills such as planning and drafting, not with linguistic knowledge such as grammatical structures.

On the other hand, according to White and Arndt (1991), the writing process has six processes: generating, focusing, structuring, drafting, evaluating, and re-viewing. Moreover, a typical writing process includes brainstorming as the initial stage and many drafting and self-evaluation steps, which ultimately results in the final version of the draft. In this process, White and Arndt (1991) regard the process writing approach as divergent. That is, unlike the product-focused approach in which the model text is generally imitated, the final draft cannot be pre-organized in the process approach. Defining the processes in this approach, White (1988) argues that the task should be initially specified, and then learners should communicate with each other (brainstorming). They should also practice by drafting and recycle/ revise their composition based on the feedback taken from the teacher. Moreover, in this approach, feedback is more based on teachers' personal comments rather than feedback on mechanics such as grammar errors (Gomez et al., 2006).

In foreign/second language writing instruction, this approach has been widely utilized since the introduction of the communicative approach.

2.7 Corrective feedback types in L2 writing

As Raimes (1987) states, writing is considered an important part of language development since it is a must for language learners as they need to improve their writing skills when they proceed into higher levels. In addition to practicing, receiving feedback on their written works is also important for language learners (Raimes, 1987). Lightbown and Spada (1999) define corrective feedback as any signal that shows language learners there is something to be corrected in their use of the target language. As for the function of feedback, Hedge (2005) acknowledges that it lets learners monitor themselves and shows whether they are on the right track

or not. Otherwise, learners may get lost in the writing production process unless they get feedback. Furthermore, giving feedback also helps teachers to see in which areas learners are having difficulties (Hedge, 2005). Therefore, feedback is assumed to be effective in language learners' writing skill development. Which type of feedback is the most beneficial is still controversial, though (Ur, 1996; Sheen, 2007; Bitchener, 2008; Bitchener & Ferris, 2012). Pienemann, Johnston, and Brindley (1988), on the other hand, propose that in order feedback to be effective, the learner should want to omit the mistake, visualize what the correct form looks like, notice that there is a flaw in the production activity, and have a chance to correct it in a learning environment.

In the scope of the present study, certain feedback types in writing were focused. Feedback can be about linguistic forms/accuracy, organization, and content (Ellis, 2009). There are two main types of feedback in writing: immediate oral/verbal feedback and delayed written feedback, each of which has subtypes.

2.7.1 Immediate oral/verbal corrective feedback

It is the corrective feedback type given verbally while language learners are producing a piece of writing. It may focus on accuracy, organization, and/or content. It has two subtypes: focused and unfocused. Focused immediate oral/verbal feedback provides feedback to the learner about one or at most two general points. It focuses on specific aspects of the target language use whereas the unfocused one is more holistic. That is, it gives an idea or information about the whole piece of writing without emphasizing specific aspects to language learners (Sobhani & Tayebipour, 2015).

2.7.2 Delayed written corrective feedback

This corrective feedback is in a written form and is given by the instructor after the learner finishes producing his/her written work. It may also be about linguistic forms, organization, and/or content. It has four subtypes: focused, unfocused, direct, and indirect (Bitchener, 2008; Ellis, 2009). Focused delayed written corrective feedback just focuses on one or two certain aspects of the target language such as giving feedback only about the use of articles – a/an/the- in one paragraph or essay to the learner. Unfocused delayed written corrective feedback may include feedback about almost all components of a written work such as linguistic forms/grammar, organization, and/or content.

Delayed written corrective feedback has two more subtypes: direct and indirect (Ferris, 2003). While giving direct written corrective feedback, the instructor corrects or writes the correct forms of learners' mistakes. However, indirect delayed written corrective feedback includes some error codes or meta-linguistic codes such as underlining or writing "T" for tense mistakes, and so on. By going over these codes, the learner tries to produce correct target forms in the second or third draft/ revision, which encourages learners to be engaged in self-correction.

2.8 Multimedia learning

According to Mayer (2005), multimedia learning, which is the focus of Mayer's cognitive theory of multimedia learning, is forming mental representation by presenting words and pictures to learners. There are three views on multimedia learning. According to the view claiming that multimedia learning aims to strengthen responses, a learner is a passive receiver of feedback, and a teacher is a feedback giver. This view suggests that responses are strengthened if the learner receives

rewards as feedback and regards multimedia as only an exercise system. The view that sees multimedia learning as information acquisition suggests that a learner is a passive receiver of information, and a teacher delivers information. In this context, multimedia is used as a delivery system. This view is sometimes called the empty vessel or commodity view because the learner's mind is considered as an empty box to be filled with information that is regarded as a commodity within the same view. The last view is based on knowledge construction. This view states that a learner is a meaning maker, and a teacher guides the learners. Multimedia is thought to be a cognitive guidance system within this view. These three views can be utilized in different contexts. For instance, Mayer (2005) states that although he finds the response strengthening view weak, he argues that some certain skills can be learnt best through drill and practice that can be categorized under this view.

Related to these views, Mayer (2005) puts forward two goals and three types of learning outcomes of multimedia learning. The first goal of multimedia instruction is to enable learners to remember and recognize the presented material. The second goal is to let learners use what they get from the presented material in new and different situations. Retention tests are used to test the former goal, whereas transfer tests are conducted to test the latter. According to Mayer (2005), at the end of a multimedia learning process, three types of learning outcomes can be observed. The first one is no learning which indicates poor retention and poor transfer. The second type is rote learning as a result of good retention, but poor transfer. The final type is meaningful learning which results in integrated knowledge thanks to good retention and good transfer. Meaningful learning is the intended goal of multimedia learning and instruction. However, to achieve meaningful learning, some factors and design features of multimedia learning should be taken into account.

One of the theories offering implications for multimedia learning is the cognitive load theory of Sweller (1988). According to Sweller (1988), all cognitive activities of human beings are determined by the information in the long-term memory, and he states that learning is a change, and it is assumed to be accumulation of knowledge in the long-term memory. However, humans perceive information which is temporarily placed in the working memory through their senses, and there is a mutual relationship between the long-term memory and the working memory. Working memory is like a filter processing the presented information whereas the schemas built in the long term memory shape how the information is processed by the working memory. Nevertheless, capacity of the working memory is limited. Thus, processing information can lead to cognitive load for learners. Sweller's cognitive load theory (1988) assumes that there are three kinds of cognitive load. Intrinsic load stems from the default complexity of the presented material whereas extraneous load results from the improper instructional design. On the other hand, germane load is the useful cognitive load that results from learning effort. The main goal of multimedia learning design is to avoid extraneous load while encouraging the germane load, which can be provided by applying multimedia design principles.

With the aim of adapting Sweller's cognitive load theory to multimedia learning, Mayer (2005) puts forward a cognitive theory of multimedia learning. In this theory, three important assumptions are the basis. According to the dual channel assumption (Paivio, 1978), humans have two separate channels to process the presented material. While visual channel receives pictorial input, auditory channel receives verbal input. However, as the limited capacity assumption implies, these channels have limited capacity, which may trigger cognitive load for learners. The third assumption that Mayer (2001) proposes is active processing. Through active

processing, humans get engaged in active information-processing in three main steps such as “attending to relevant incoming information”, “organizing selected information into coherent mental representations”, and “integrating mental representations with other or prior knowledge” (Mayer, 2005, p. 38).

By taking all of these assumptions into account, Mayer (2001) suggests 12 multimedia design principles to reduce extraneous cognitive load, manage essential cognitive load, and foster germane cognitive load so that learners can get involved in meaningful learning and to enhance active processing. On the other hand, the basis of all these principles is the multimedia principle. According to Mayer (2001), humans learn better from words and pictures than from words alone.

In order to reduce extraneous load, five of these principles can be used. According to the coherence principle, people learn better when only essential materials excluding distractive ones are presented to them. In the signaling principle, if the important parts of the essential materials are highlighted to attract learners’ attention, they learn more effectively. When it comes to the redundancy principle, it can be stated that people learn better from graphs/pictures and narration rather than graphs/pictures, narration, and on-screen text. Based on the spatial contiguity principle, graphs/pictures and the related text should be presented close to each other whereas narration and the related graph/picture should be presented simultaneously according to the temporal contiguity principle.

As far as managing the essential load is concerned, three multimedia principles can help enhance the learning process. Complying with the segmenting principle, a multimedia material should be broken into parts according to learners’ pace so that essential cognitive load may result in meaningful learning. Moreover, the pre-training principle which means explaining the key characteristics or names

before a lesson can help learners to focus on the core material during the multimedia lesson. Another way to manage essential load is by applying the modality principle. According to the modality principle, people learn better when graphs/pictures are presented with narration than with on-screen text.

In order to foster germane load, the personalization principle, which means using a conversational style rather than a formal speech style enables people to learn better, may encourage learners to struggle more to understand what the instructor says. Moreover, if a human voice instead of a mechanic voice (voicing principle) is used in a multimedia lesson, learners' internalization of the information becomes easier thanks to the sense of social presence in learners. According to the embodiment principle, if an agent is used in a multimedia lesson, it should have human-like gestures, mimics, and body language whereas the image principle asserts that putting the speaker's image on the screen does not necessarily enhance learning.

2.8.1 Use of multimedia in language learning

Language use has a goal of conveying messages. This goal can be achieved through certain receptive skills such as reading and listening, and productive skills such as writing and speaking. These skills need to be improved in a language learning process, and multimedia design aims to enhance this process. When multimedia instruction is integrated to language learning, it becomes a part of computer-assisted language learning (CALL). Plass and Jones (2005, p. 469) define the use of multimedia to learn a language as "use of words and pictures to provide meaningful input, facilitate meaningful interaction with the target language, and elicit meaningful output."

Chapelle (1998) adopts the interactionist approach in second language acquisition and supports its use in computer-assisted language learning environments. The first stage is the comprehensible input stage. In a multimedia language learning environment, learners select words or pictures so that they can perceive and comprehend the input. Once the input is comprehended, it becomes intake to be integrated into learners' prior linguistic knowledge, which forms the second stage of the interactionist approach that involves interactive processing. After these two stages are completed, learners are expected to produce their comprehensible output which is the result of knowledge transfer. In CALL environments, different multimedia modalities such as visual input or auditory input are incorporated into these stages of the interactionist approach.

2.9 Learning styles in flipped classroom settings

Arora, Leseane, and Rasisinghani (2012) state that best learning is achieved when individual learner needs are defined beforehand, and these needs are defined by learners' prior knowledge, learning styles, and cognitive traits. It is argued that the same instruction never results in the same learning gains for any two individuals (Inal, Buyukyavuz & Tekin, 2015). Moreover, a specific textbook may not fulfill all learners' needs (Wu & Alrabah, 2009). Therefore, learner differences are considered to be important elements affecting the learning process.

As learning style is a vital factor in learning and personalized/ individualized learning has become more widespread recently, the concept of learning style has been studied by many researchers. Moreover, as learning styles are measured by self- reports of learners, Ellis (1991) states that it is difficult to determine what a learning style is and which styles are generally found among learners. Thus, learning

styles have been defined in many ways by various researchers. For instance, Biggs (1988, p. 185) defines learning style as "the stable ways of approaching tasks that are characteristic of individuals." The most important word here is characteristic because it means that every learner is different, and so how they learn differs. Therefore, Ehrman, Leaver, and Oxford (2003) classify learning style as one of the learner differences affecting the learning process. In general terms, learning styles are defined as the preferred ways in which learners receive and process information (Oxford, 1990 & 2003). Keefe (1979) defines it as psychological and cognitive learner characteristics that interact with learning environment while learners receive and process information. Gregorc (1979) states that learning styles are observable indicators of the features of mind, and give us clues about how a learner's brain works. Willing (1988) defines learning style as a combination likes and dislikes of a learner. Reid (1995, as cited in Hatami, 2013, p. 488) maintains that learning styles are natural, habitual, preferred ways of absorbing, processing, and retaining new information and skills, and they should be used to realize learners' potential. Dunn and Dunn (1979) argue that learning styles are specific to individuals, and the way that works for an individual learner may not help other individuals or learners in the process of learning. Dağ and Geçer (2009, p. 862) define learning style as "learning ways or preferences which are used to learn or remember new knowledge by the learner."

From all these definitions, it can be inferred that learning styles are specific to learners, and they are under the category of learner differences or learner characteristics in a learning process. That is, one type of instruction/input may not work for all learners since learners can be categorized as visual, auditory, and kinesthetic ones. Thus, learning styles should not be ignored while designing an

instruction in traditional classrooms or multimedia learning environments.

On the other hand, since there are lots of perspectives and definitions as for learning styles, many learning style inventories have been designed up to now. Willing (1988) summarizes the instruments that are used to measure learning styles: Canfield and Lafferty's (1970) learning style inventory is a self-report instrument including rank ordering of 30 questions. Dunn (1988) states that according to the Dunn, Dunn, and Price model (1984), learners are affected by the instructional environment, emotional factors, the people with whom learners learn best (group or individual work), physical factors, and psychological and cognitive inclinations, so they designed a more comprehensive self-report instrument requiring 104 items to be rank-ordered. To measure learning styles, Gregorc (1979) suggests a self-report instrument, observation, and interviews in his transactional ability inventory. Another learning style inventory that has four categories was designed by Kolb (1976). He argues that learning styles are related to four basic learning theories and that learners learn by feeling, studying, thinking, and doing. In his learning style inventory, four words are ranked in each set, and those words symbolize each way of learning such as by feeling, by studying, by thinking, and by doing. Accordingly, Kolb (1985) categorizes learners into four groups such as accommodators, divergers, convergers, and assimilators.

When it comes to learning styles in language learning, it can easily be seen that learning styles are accepted as one of the factors that affects language learning process; therefore, many studies have been conducted up to now, and there have been many arguments regarding a match/mismatch between learner styles and teacher/instruction styles. According to Skehan (1989), learner differences play an important role in language learning. One of the concepts that makes a language

learner different is his/her learning style. Lee (2015) claims that certain perceptual modalities can be integrated into ELT materials so that learners can receive the input in their own preferred ways. Moreover, Oxford (2003) emphasizes that in order to have a successful language learning- teaching process, learning styles of language learners must be defined. Reid (1998) also argues that a match between the learning style and the instruction would result in gains in language learning. Additionally, Dunn and Dunn (1979) assert that if an instruction completes a learner's characteristics, that learner becomes more motivated and more successful academically, and this argument was supported in Dunn and Griggs's experiment (1989), where students were taught according to their learning styles and became much more successful. Regarding language learning, Ellis (1991) puts forward that a match of learner styles and instruction yields better learning. Reid (1998) also suggests that if language teachers become more familiar with the ways their students use while learning a new material, they will be able to decide on what to teach and how to teach it better. As a result, analysis and identification of learners' learning styles has gained importance in a language learning environment.

On the other hand, various instruments to measure learning styles in the context of language learning have been designed up to now. The Edmonds Learning Style Identification Exercise (ELSIE) was created by Reinert in 1976 with the purpose of being used in foreign language education contexts. In ELSIE, Reinert (1976) focuses on four modality categories: 1) the visual image of the action or thing, 2) the visual image of the printed word, 3) the meaning direct from the sound, 4) kinesthetic response to the word. The test includes the 50 most common English words.

In his psychological model of (language) learning- style differences, Willing (1988) divides the learning process into three steps such as receiving, processing, and using. The process starts with reception of the language input through preferred sensor modalities. If learners prefer to receive input through their eyes, they are categorized as visual learners. If they prefer to receive input through their ears, they are called auditory learners. If they prefer learning through actions or movements, they are called kinesthetic learners. After receiving the input, learners start to process it. In this process, cognitive styles start to affect learning. In the last stage, learners try to use the received and processed input according to its function.

Reid's Perceptual Learning Style Preference Questionnaire (1987) is also based on perceptual modalities, and he categorizes learning modalities as visual, auditory, kinesthetic, and tactile. He defines visual learning as learning through eyes, kinesthetic learning as learning through experience, tactile learning as learning through sense of touch, and auditory learning as learning through ears. Moreover, his theory has another factor affecting learning: social interaction. It has two subcategories such as individual work and group work. A similar model is suggested by Fleming (1987). The VARK model was introduced with the goal of identifying learning styles. In this model, Fleming and Mills (1992) argue that VARK stands for visual (V), auditory (A), read/write (R), and kinesthetic (K).

However, these theories are generally tested on class materials that include static texts as input. With the advancements in technology, educational materials are not limited to static texts anymore (Chen & Sun, 2012). Thanks to multimedia learning environments, learners can receive various types of input such as pictures, text, and narrations either sequentially or simultaneously. Thus, the analysis of learner styles should also be conducted in multimedia environments because the

inferences that are valid for traditional classroom settings may not work for multimedia environments. On the other hand, while learning styles are assumed to be important in the process of language learning in traditional classes by many researchers (Oxford & Ehrman, 2003; Reid, 1987; Willing, 1988), there has been little research on the effect of learning styles in computer-assisted language learning (CALL) environments (Hsu, 2015). Moreover, as Gülbahar and Alper state (2011), although multimedia environments have been prevalently used in higher education in particular, there is little research about the connection between learner styles and different learning environments including multimedia.

2.10 Learner autonomy in flipped classroom settings

Flipped learning is considered to be under the category of blended learning as it has both distance learning and face-to-face parts. While learners are studying the lecture videos at home or in any place other than the classroom, they are not in the same environment with the teacher, and thus become distance learners. On the other hand, after studying the lecture videos, they go to the classes and have lots of face-to-face activities and tasks with the presence of the teacher. As there are some distance learning components in flipped learning, learner autonomy gains importance since learners are expected to organize and pace their own learning process while studying the videos at home. One of the most referred definitions of autonomy belongs to Holec, and he is accepted as the father of autonomy (Udosen, 2014) since he used the term for the first time in 1981. Holec (1981, as cited in Benson & Voller, 1997) defines autonomy as a learner's taking charge of all aspects of his learning such as identifying learning goals, determining the content, choosing the methods to be used, monitoring his own learning, and evaluating what has been learnt.

Autonomy is also one of the variables in Moore's transactional distance theory (1972). Moore (1972) states that apart from physical distance, there is psychological space between the teacher and learners in distance education, which he calls transactional distance. There are three variables that affect this transactional distance: structure, autonomy, and dialogue. In distance education, there is interplay among these variables as they affect each other in a learning environment. As Moore states (1972), when a distance course or a learning material is too structured, it offers less control to learners. That is, learners do not need to plan their own learning and so they do not need autonomy. However, if a distance course or programme is flexible, then autonomy plays an important role. In that context, dependent learners who cannot make use of autonomy have difficulties in their learning process, which increases the transactional distance between the teacher and learners. Another variable affecting this distance is dialogue. It means that the more interaction and communication opportunities a programme or a distance course offers to learners, the less autonomy learners need to exert. Moreover, taking these variables into consideration, Moore (1993) puts forward that learners who have high level of autonomy can lead their own learning more enthusiastically and successfully. Nevertheless, less autonomous learners have some adaptation problems in a distance learning environment because they cannot manage or organize what, where, or when they learn.

On the other hand, autonomy has been examined in many studies in language learning. Skehan (1989) categorizes learner autonomy under the category of learner differences and accept it as one of the main factors in the process of language learning. Dickinson (1995) states that autonomy is a measure of individual engagement in decision-making in his/her own language learning process. Little

(1995) argues that autonomy depends on one's taking responsibilities for his/her own learning. Similarly, Littlewood (1996) defines autonomy as the learner's ability and willingness to make decisions and choices in his own learning process. Littlewood (1996) also argues that autonomy is in three dimensions such as communication, learner, and personal life. Therefore, he concludes that there are three types of autonomy in foreign language learning: autonomy as a communicator, autonomy as a learner, and autonomy as an individual. Moreover, he argues that there are levels of autonomy starting from learners' making choices in more controlled activities to learners' use of language out of class freely.

On the other hand, as Littlewood (1996) also contends that there is a relationship between learner autonomy and motivation. According to Littlewood (1996), willingness is related to a learner's motivation and confidence. For instance, if a learner is highly motivated, he/she is more autonomous while learning a new thing, or if a leaner has a high level of autonomy, he/she becomes more motivated to learn more because thanks to autonomy, he/she becomes successful, which results in high motivation. Another theory that connects autonomy and motivation is Deci and Ryan's self-determination theory (1985). They define autonomy as learners' self-initiating and self-regulating their own learning, and they categorize motivation into two types: intrinsic and extrinsic motivation. According to them, there is a mutual relationship between motivation and autonomy. If learners want to learn something for its own sake, their intrinsic motivation level increases. If learners learn the content because of some external rewards such as grades or awards, then their extrinsic motivation level increases. They argue that when learners are intrinsically motivated, they become more autonomous in the learning process since learners' natural curiosity, namely, intrinsic motivation, energizes them to learn new things.

On the other hand, if the level of self-determination for learners is high thanks to their high level of autonomy, their intrinsic motivation rises as they become aware of what they want to learn.

Benson (2001) argues that autonomy is not a single entity, but a combination of different types of autonomy such as learner's control over the content, psychological capacity to control one's own learning, and learning behavior. According to Benson (2001), autonomy can be exercised in these three aspects. Benson puts forward six approaches to foster autonomy. These are resource-based approaches, technology-based approaches, learner-based approaches, classroom-based approaches, curriculum-based approaches, and teacher-based approaches. As for technology-based approaches, it is stated that there is a mutual relationship between technology and autonomy. That is, technology can be used to reinforce autonomy, and the high level of autonomy enhances learning in technology-based learning environments. By presenting lots of different types of input such as video, image, and sound to language learners, technology-based language learning environments force learners to make choices among different types of the learning material, which increases self-regulated autonomous learning. On the other hand, as numerous options are presented to autonomous learners in a technology- based environment, they become more motivated to learn. Furthermore, as Moore (1972) also states, more autonomous learners realize their goals more in distance multimedia technology-based learning environments.

On the other hand, Nunan (1997) argues that there are levels of autonomy, and he lists these levels as awareness, involvement, intervention, creation, and transcendence. In the first level, students are made aware of the material content. Then, they become engaged in setting their learning goals. In the third level, they are

expected to edit and adapt the content. In the following level, learners form their own objectives. Finally, they make connections between the classroom and the world.

As it can be seen, learner autonomy has been studied and described in language learning, which is called autonomous language learning (ALL); however, most of the studies have been done in traditional classroom settings. Allford and Pachler (2007) express that the emergence of information communication technology (ICT) has resulted in some shifts in (language) learning, too. As a result, new learning environments such as computer-assisted language learning (CALL) and multimedia environments in language learning have gained importance. Moreover, according to Warschauer (2000) CALL has become an integrative environment in which learners need to exert autonomy while being involved in authentic discourse via technological devices. Moreover, Smith and Craig (2013) confirm that learning in a CALL or blended learning environment has a great potential to enhance autonomy. Smith and Craig (2013) also suggests that CALL environments offer various opportunities to learners to organize their own learning such as goal setting, pacing, progress evaluation, and mentoring in face-to-face sessions in blended learning. Therefore, autonomy is an important variable affecting learning in CALL. Nonetheless, as Sanprasert (2010) states, the studies that focus on the connection between autonomy and CALL are few.

2.11 Critical thinking in flipped classroom settings

Defining and measuring critical thinking have been controversial areas for years. Although there have been numerous studies, the definition of critical thinking is still fuzzy. However, there are some overlaps and basic similarities in these definitions (Halpern, 1999). In his Delphi Report, Facione (1990) asks what kinds of skills

critical thinking includes and how those skills can be assessed. In that report, it is indicated that critical thinking involves six cognitive processes such as "interpretation, evaluation, analysis, inference, explanation, and self-regulation." (Facione, 1990, p.6). It is also reported that an individual does not need to be proficient in every skill in order to be labeled as critical thinker. Moreover, each skill that is argued to be a component of critical thinking has sub-skills. For instance, interpretation includes categorization, decoding significance, and clarifying meaning as sub-skills. Analysis includes examining ideas, and identifying and analyzing arguments. The sub-skill of evaluation is assessing claims and arguments. Inference involves querying evidence, conjecturing alternatives, and drawing conclusions. Stating results, justifying procedures, and presenting arguments are components of explanation whereas self-regulation requires self-examination and self-correction. On other hand, Facione states that (1990) there is an affective part of critical thinking as good critical thinkers are assumed to have some dispositions such as inquisitiveness, enthusiasm for reasoning, being open to other views, and desire to search for reliable information.

Apart from Facione (1990), Kuhn, Halpern, Lipman, Sternberg, and Ennis also studied critical thinking. Kuhn (1999) emphasizes that critical thinking may be involved in daily cognitive thinking processes of learners, but mostly it is related to learners' metacognitve skills. On the other hand, Halpern (1998, 1999) also states that critical thinking is a goal-oriented thinking process which is based on rationalization, and it is executed to solve problems, structure inferences, estimate possibilities, and make decisions. Lipman (1988) also argues that the core of critical thinking is criteria. That is, critical thinking is based on criteria that are well-developed and structured whereas uncritical thinking is random and not organized.

Moreover, he assumes that criteria are reasons, and if an opinion is not supported with reasons, it is not the process of critical thinking.

On the other hand, Sternberg (1986, p. 3) defines critical thinking as "mental processes, strategies, and representations people use to solve problems, make decisions, and learn new concepts". He also argues that there are three traditions such as philosophical, psychological, and educational ones in critical thinking. Under the category of educational tradition, Bloom is considered to be one of the pioneering researchers since his hierarchy of learning skills are pervasively used in the education world (Sternberg, 1986). However, Sternberg (1986) stresses that because the educational tradition is generally based on experience and observations, critical thinking skills in this tradition are too obscure to evaluate and apply in classroom settings. Ennis (1985) also supports the connection between higher-order skills in Bloom's Taxonomy and critical thinking; however, similar to Sternberg, Ennis (1985) expresses that the skills that are presented in Bloom's Taxonomy are too blurry to define and assess critical thinking. Therefore, Ennis (1985, p. 24) defines critical thinking as "reflective and reasonable thinking that is focused on deciding what to believe or do". From this definition, it can be concluded that according to Ennis (1985), critical thinking involves making decisions about actions and beliefs.

When it comes to measuring critical thinking, Ennis (1984) argues that critical thinking should not be measured by multiple-choice tests or scales because they may limit an individual's explanation or argumentation only to choices, and so they may not yield reliable results. That is why Ennis and Weir (1985) created Ennis-Weir Critical Thinking Essay Test in which test takers can explain and justify their arguments about the case given to them. However, as the number of topics in this test is low, it is not so applicable in different contexts.

Stenberg (1986), on the other hand, categorizes the tests by using two of three traditions he claims that exist in critical thinking. The philosophically-derived tests are the Watson-G1aser Critical Thinking Appraisal, the Cornell Critical Thinking Test, and the New Jersey Test of Reasoning Skills. All of these three tests overlap with each other, and they have similar underlying principles (Sternberg, 1986). On the other hand, there are also psychologically-derived tests, one of which is Triarchic Test of Intellectual Skills. The philosophically-derived ones are quite verbal whereas psychologically-derived ones both verbal and nonverbal items.

When it comes to critical thinking in flipped design, Bergmann and Sams (2007), who are the teachers applying flipped classrooms, argue that flipped classroom can be based on Bloom's taxonomy of learning domains. They put forward that low-order skills such as remembering and understanding occur at home, so more in-class time can be devoted to high-level skills such as applying, analyzing, evaluating, and creating. Although there are numerous definitions of critical thinking, Bloom's high-order skills can be categorized under critical thinking (Ennis, 1985; Sternberg, 1986; Halpern, 1999). That is why a critical thinking scale was given to the participants in this study in order to check whether participants whose critical thinking levels are high can benefit most from the application of flipped classroom where more in-class time is allocated for the activities encouraging high-order skills.

CHAPTER 3

METHOD

3.1 Purpose of the study

This study aims to examine the effect of flipped classes on students' writing achievement in an English course, to find out which modality of flipped videos, including animation/diagram, narration, and on-screen text presented either simultaneously or sequentially in a system-paced or user-paced design, influences the writing achievement of students, and to analyze whether the interplay among students' learning styles, autonomy levels and critical thinking disposition levels affects their learning gain.

3.2 Research questions of the study

1. How do flipped writing classes affect students' writing achievement in English classes?
2. Does the modality of flipped video lectures affect the writing achievement of students who have different learning styles?

    2a. Which modality of flipped writing classes results in higher writing scores for visual learners?

    2b. Which modality of flipped writing classes results in higher writing scores for auditory learners?

    2c. Which modality of flipped writing classes results in higher writing scores for kinesthetic learners?
3. Does the modality of flipped video lectures affect the writing achievement of students who have different levels of critical thinking disposition?

3a. In which modality of the flipped writing classes are the writing scores of the students who have high level of critical thinking higher?

3b. In which modality of the flipped writing classes are the writing scores of the students who have medium level of critical thinking higher?

3c. In which modality of the flipped writing classes are the writing scores of the students who have low level of critical thinking higher?

4. Does the modality of flipped video lectures affect the writing achievement of the students who have different levels of learner autonomy?

    4a.In which modality of the flipped writing classes are the writing scores of autonomous students higher?

    4b. In which modality of the flipped writing classes are the writing scores of neutral students higher?

    4c. In which version of the flipped writing classes are the writing scores of dependent students higher?

5. How do the midterm exam components that were taken just before the intervention correlate with the posttests?
6. How does the type of the feedback given to the flipped groups during the practice essay writing affect their writing achievement?

3.3 Hypotheses

1. Students in flipped classrooms will take higher scores than the students in traditional classrooms in English writing classes.
2. Regardless of their learning style, autonomy level, and critical thinking disposition level, the students who study the video lecture types (1) AN+T,

(3) AN+T_W, (4) AN+T_P, and (5) AN+T_LC will outperform the groups who study the types (2) AT+N and (6) AT+N_LC in the posttests.

3. A significant correlation can be found between posttest scores and vocabulary, grammar, writing components of the midterm exam.
4. The groups receiving more feedback that focuses on linguistic forms/accuracy and organization will be more successful in the essay writing posttest.

3.4 Definition of terms

The definitions of the terms used in this study are clarified in the following section. The aspects of the definitions that were particularly emphasized in the study are also clearly stated.

3.4.1 Flipped classroom

The flipped design in this study involved (online) computer-based video presentations of the lecture material (prepared by the researcher by recording her own voice) and one computer-based pre- class quiz (before in-class time). In-class activities were categorization activities, sample essay analysis, and group tasks through which students searched and presented their findings about the essay topic to the whole class, and active in-class writing practice.

3.4.2 Video modality

In multimedia instruction, modality refers to how information is presented to learners. Video modality can be defined as a video utilizing either a visual or auditory or both channels while presenting an input to learners. A video may include

modalities such as diagrams/graphs, narration, and on-screen text. These modalities in which information is presented appeal to visual, auditory, and visual channels respectively. In this study, six videos with different modalities presented in different designs were used.

3.4.3 Writing as a skill

Writing is one of the four skills in second language acquisition, and it is accepted as a productive skill as students produce their own sentences or phrases (Obilişteanu, 2009)**.** Moreover, writing also includes many crafting skills such as using the grammar correctly, having a range of vocabulary, punctuating correctly, spelling accurately, using different sentence structures, connecting ideas to the main topic, organizing the content (Hedge, 2005). According to Hedge (2005), writing may have different types such as personal writing, public writing, creative writing, social writing, academic writing, and institutional writing. In this study, the type of writing that was focused on was the essay, which is in the category of academic writing (Hedge, 2005), and it was defined as essay writing ability.

3.4.4 Essay writing ability

Raimes (1983) defines essay writing ability as the student's ability to compose his/her ideas based on criteria as grammar, syntax, content, mechanics, organization, word choice, purpose, drafting (the writer's process), and audience. In this study, only organization and useful language structures that can be used in a classification essay were taken into consideration as for essay writing ability.

3.5 Design

In this study, the effects of different flipped classroom modalities on students' writing achievement in English classes were examined in a quasi-experimental pretest-posttest design. It is quasi- experimental because the study was conducted in intact classes that were formed at the beginning of the academic year in order not to hamper learning in the classrooms (Creswell, 2012). In the beginning, a pretest was given to all groups before the intervention. Additionally, an essay posttest, which is a parallel form of the pretest, and a conceptual posttest were given to all groups after the intervention.

The independent variable in the study is instruction type which has two levels such as traditional lectures and flipped video lectures. The dependent variables are the writing achievement which was measured with a conceptual posttest, and with essay-type questions in the pretest and essay writing posttest. The control group was the class taught in the traditional classroom setting whereas experimental groups were the classes taught in the flipped classroom settings.

3.6 Setting

The study was conducted in the intensive English program at a state university in Istanbul, Turkey whose medium of instruction is English. Because the medium of instruction is English, students take a proficiency exam prepared by the testing office of the intensive English program to determine their English level so that they can start to study in their chosen faculties. At the beginning of the academic year, new students starting the university take the proficiency exam whose components are reading, listening, and writing. Students are required to take 60 (equivalent to 79 TOEFL IBT / 6.5 IELTS) to pass the proficiency exam. If they cannot pass the

proficiency exam, they have to attend the intensive English program. On the other hand, the students who don't take the proficiency exam in the beginning of the academic year are automatically registered for the program.

Before the academic year begins, the students who cannot pass the proficiency exam and will therefore attend the intensive English program have to take the placement exam prepared by the testing office of the program. Based on the placement exam results, students are assigned to their levels: beginner (A1- A2, Common European Framework/ CEF), pre-intermediate (B1-B2, CEF), intermediate (C1, CEF), and advanced (C2, CEF). In the lessons, course books prepared by foreign publishers and booklets including reading, listening, and writing materials are used. These booklets are prepared by the curriculum committee of the intensive English program.

3.7 Participants and sampling

The population of this study included all intensive English program students learning academic English at state universities whose medium of instruction is English in Turkey. Convenience sampling, which is a non-probability sampling method, was used, and the accessible population (at a state university whose medium of instruction is English in Istanbul) was studied. Participants were chosen from intact pre-intermediate level (equivalent of B1 in Common European Framework) classes in the intensive English program at a state university whose medium of instruction is 100% English in Istanbul. The participants were 18-19 years old. They were in their first year at the university. When they pass the English proficiency exam, they will become freshman students in different departments.

Based on convenience sampling, the instructors of these classes were interviewed. Seven classes whose instructors volunteered to participate in the study were chosen. One of the classes was randomly assigned to the control group whereas the other six classes were randomly assigned to the experimental groups. The total participant number was 127. There were 15, 18, 20, 17, 21, and 18 participants in the six experimental groups respectively, and the control group included 18 participants.

3.8 Data collection instruments

In this study, learner autonomy scale (Egel, 2003), learning style inventory (Şimşek, 2002), critical thinking disposition scale (Akbıyık, 2002), and a pretest (essay writing) were given to the participants in all groups before the intervention. After the intervention, a conceptual posttest and a posttest (essay writing) were given to all groups.

3.8.1 Learner autonomy scale

In this study, flipped writing classes were considered as CALL environments, and a learning autonomy scale ($\alpha = .81$) which was developed by Egel (2003) was given to students to determine in which modality of flipped writing classes learners who have high, medium, and low level autonomy became successful and got higher writing scores.

The scale was given to the participants before the intervention. The scale is in Turkish, and it includes 44 items. Within the scale, 9 subscales are measured. For responses, a 5-point Likert scale was used, where response choices were not true/ rarely true/ sometimes true/ mostly true/ always true (see Appendix A).

3.8.2 Learning style inventory

In this study, learning styles were defined based on sensory perceptual modalities (Willing, 1988; Reid, 1998; Fleming, 2001) because the designed video lectures included three types of input: diagrams, text, and narration. Therefore, it is important to know which modalities work best with visual and auditory students. The reason for choosing these three types was to test Paivio's dual channel/coding theory (1978) and the cognitive theory of multimedia learning (Mayer, 2005) in a flipped language course.

Therefore, the inventory ($\alpha = .84$) developed by Şimşek (2002) was given to the participants before the intervention. This inventory measures three learning styles such as visual, auditory, and kinesthetic styles. The inventory includes 48 items in total, and there are 16 items for each learning style. The Cronbach's alphas for visual, auditory, and kinesthetic styles are .79, .77, and .68 respectively. The inventory is in Turkish. For responses, a 5-point Likert scale was used with the following response choices: strongly agree/ agree/ neutral/ disagree/ strongly disagree (see Appendix B).

3.8.3 Critical thinking disposition scale

In this study, the scale that was developed by Akbıyık (2002) was used to measure the participants' critical thinking disposition. After the posttest, how critical thinking disposition interacts with the writing achievement scores in traditional and flipped learning environments was analyzed.

The scale ($\alpha = .87$) was given to the participants before the intervention. It measures critical thinking disposition with 30 items. The scale is in Turkish. For responses, a 5-point Likert scale is used with the response choices being totally

agree/ agree/ neutral/ disagree/ totally disagree (see Appendix C).

3.8.4 Conceptual posttest.

In this study, the conceptual posttest was given to all groups just after the participants in the flipped classes studied the videos and the ones in the traditional classroom received their lecture in order to examine what they had learnt from the video lectures or traditional lectures. The test included one matching question with six items, 2 multiple choice questions, 3 odd-one-out questions, and six fill-in-the-blank questions about the organization of the classification essay, categorization, and useful language structures that can be used in a classification essay (see Appendix D). The test was 25 points in total, and its duration was 20 minutes. The Cronbach's alpha for the conceptual posttest was .78.

3.8.5 Writing achievement tests: Pretest and posttest

In this study, the effects of flipped classrooms on students' writing scores were examined. Thus, in the pretest, a classification essay topic was given to the participants, and they were asked to write an essay including 1 introduction paragraph, 3 main body paragraphs, and 1 conclusion paragraph in 50 minutes. There were two posttests in this study.

The pretest was essay writing, and the topic was types of TV programs. The conceptual posttest (the first posttest) included matching and multiple choice questions about the organization of the classification essay and the useful language structures. The posttest topic was essay writing, and the topic was types of movies (see Appendix E).

As an essay topic is open-ended, there is no reliability value of the writing part of the tests. However, the testing office of the program takes content validity into account. Content validity is ensured by asking students to write about similar topics that they cover throughout the term/year or in a similar genre.

3.9 Materials

The materials that were used in traditional classrooms (control group) and flipped classrooms (experimental groups) are below. The content of the videos and hardcopy materials was the same (see Table 1).

Table 1. Materials Used

	Traditional Classroom (Control Group)	Flipped Classrooms (Experimental groups)
Materials	The hardcopy materials sent by the curriculum committee are about the essay organization and the structures that are used in the classification essay (see Appendix F).	Video lectures of the same hard copy materials that are about the essay organization and the structures used in the classification essay.

Apart from these materials, six different versions which were designed based on different modalities and structures were prepared, and the researcher recorded his/her own voice while explaining the material on *Articulate Storyline*, an authoring environment to create instructional materials. The video lectures included 3 short components because as Wan (2014) and Sarawagi (2014) state, short videos (not

more than 15 minutes) are helpful to guarantee students' understanding. After the video lectures, a pre-class quiz was prepared on *Articulate Storyline* to ensure Just-in-Time-Teaching (JTiT) (Horton & Campbell, 2014) for the in-class activities. Some of the questions in the quiz which was given before in-class sessions had been chosen from the booklet given to instructors by the curriculum committee of the program, and some of them were prepared by the researcher (see Appendix G). Participants were required to answer the questions in the quiz before the class time in flipped classrooms. The same questions were answered during the lesson in the traditional classroom (see Appendix H).

3.9.1 Video lectures

All of the video lectures in this study lasted for approximately 18-20 minutes. Each lecture involved the same content, and the content was presented to the students in three parts. In the first part, the definition of classification was given, and what the principle of division, which is the criterion used to categorize objects, people, or concepts, was explained. The second part was about the organization of the classification essay. Introduction, main body paragraphs, and conclusion were introduced to the students. In the last part, two types of relationship; that is to say, part-whole relationship and whole-part relationship were analyzed and the related useful language structures were presented to the students. Moreover, 11 questions were asked to the students in the pre-class quiz.

3.9.1.1 Video lectures and learning styles

In flipped classroom settings, learning styles are needed to be measured because flipped lecture videos generally include both visual elements and narration. In this study, the video lectures included six different modalities. Therefore, the effects of the intervention types (1) AN+T, (2) AT+N, (3) AN+T_W, (4) AN+T_P, (5) AN+T_LC, and (6) AT+N_LC on visual, auditory, and kinesthetic learners were measured.

3.9.1.2 Video lectures and learner autonomy

In flipped classroom settings, learner autonomy is an influential factor because learners are asked to study videos at home without the guidance of the teacher outside the classroom context. In this study, learner autonomy may play an important role in all of the versions because in the user-paced versions, learners were asked to go backward or forward in the video lecture by clicking on the buttons whereas in whole presentation versions, learners did not need to exert their autonomy since the video was system-paced. In the part-by-part presentations, learners were also required to navigate through the video lesson themselves by using the buttons. Moreover, in the last two versions which include learner control, autonomy was required since the learners started from whichever component they wanted and went back and forward by using the buttons in the system.

3.9.1.3 Video lectures and critical thinking disposition

Critical thinking disposition of the participants was measured in this study because the flipped classroom model suggests that low-order skills such as remembering and understanding (Bloom's Taxonomy, 1956) are used at home while

studying videos whereas learners need to use their high-order skills such as applying, analyzing evaluating, and creating in class while doing activities. Therefore, the critical thinking disposition levels of learners may affect learners' essay writing achievement. Moreover, in whole and part-by-part presentations, the quiz parts were in a different order in the videos. That is, questions were asked at the end in the whole presentation whereas they were in-between the each component of the video lecture in part-by-part presentation. Therefore, asking related questions after each component may encourage the participants to question and influence their critical thinking disposition.

3.9.2 Different modalities of video lectures

Different modalities of video types are necessary in flipped learning because individualized instruction is substantially important in flipped environments in which there is no face-to-face communication with the teacher while studying videos at home. That is, learners need the scaffolding of the instruction design or the material in the learning environment while studying the videos at home. Additionally, flipped classroom settings are considered to be under the category of blended learning environments because videos are studied at home, and activities are done in class. Thus, the instruction that is given in the video should be tailored according to learners' needs so that learners can get engaged in-class activities more easily.

However, there have been few studies on the different types of flipped video lectures up to now. Generally, traditional classrooms and flipped classrooms have been compared. However, in this study, different versions of video lectures were assigned to each experimental group so that what kind of students could benefit from which version most was analyzed. In this study, learning style, learner autonomy,

and critical thinking were measured before the intervention, and their interaction in each version was analyzed.

3.9.2.1 Intervention Type 1: AN+T

In this version, as diagrams (visual input) and narration are presented simultaneously, Paivio's Dual Channel Theory (1978) has been taken into consideration. According to this theory, when the input which appeals to two channels (visual and auditory) is presented, it does not result in any overload in one channel. This theory complies with Mayer's (2001) modality principle. According to this principle, people learn better when the visual input is presented with narration rather than it is presented with text. Moreover, according to this theory, when an input is coded both verbally and visually in the memory, it is easier to recall them because two different routes have access to the memory.

On the other hand, this version of the video lecture may seem to violate Mayer's (2001) redundancy principle. The principle states that people learn better from graphics (visual input) and narration rather than on-screen text, graphics, and narration because presenting all the modalities at the same time to learners may result in overload in the visual channel since both graphics and on-screen text are visual elements. However, this principle is valid for simultaneous presentation. Therefore, in this study, the text was presented sequentially. That is, after the diagram and narration were given to learners, the on-screen text appeared so that whether the redundancy effect occurred when on-screen text was presented sequentially could be examined. Furthermore, the narration was more detailed than the on-screen text, so on-screen text was like a summary of what had been told in the narration, and the pre-class quiz was given to the participants at the end of the whole lecture.

The rationale behind preparing this version was to see what type of learners (visual or auditory) are more successful and whether autonomy plays a role or not when the input is presented in diagrams with narration first, and then the text appears on the screen within a user-paced environment.

3.9.2.2 Intervention Type 2: AT+N

In this intervention type, animation and text were presented simultaneously, and narration followed them. The simultaneous presentation of animation and on-screen text in this intervention type might overload the visual channel of the participants since both input types were visual. Moreover, as the narration was more detailed, whether the on-screen text were like key words that encouraged the participants to listen to a comprehensive explanation or not was analyzed in this version. On the other hand, a pre-class quiz was given to the participants at the end of the whole lecture.

The rationale behind this version is to determine what type of learners (visual or auditory) are more successful and whether autonomy plays a role or not when the input is presented in diagrams with the on-screen text first, and then the participants listen to the narration within a user-paced environment.

3.9.2.3 Intervention Type 3: AN+T_W

In this intervention type, the input was presented in the same way with in version 1. However, there was no learner control in type 3. That is, the participants couldn't go forward or backward throughout the video since it was a system-paced video. Thus, in addition to the variables that were measured in version 1, the covariate that was analyzed in this version is learner autonomy. Moreover, the questions related to the

content to check the learners' comprehension were asked at the end of the whole video. On the other hand, the interaction between the participants' critical thinking levels and the presentation structure of the video lecture (whole vs. part-by-part) was analyzed in this version.

3.9.2.4 Intervention Type 4: AN+T_P

The modality of the input presentation was the same with version 1. The learning environment was system-paced. The difference between this version and version 3 is that the questions were asked to the participants at the end of each part of the video lecture, not at the end of the whole video lecture. In this version, how part-by-part presentation interplays with the critical thinking levels of the participants was analyzed.

3.9.2.5 Intervention Type 5: AN+T_LC

The modality of the input presentation was the same with version 3. Yet, the learning environment was learner-controlled in this version. That is, learners could start from whichever parts they wanted and organized their own learning process themselves. There was navigation flexibility among the components of the video in this version. The questions were asked to the participants at the end of each part of the video lecture, not at the end of the whole video lecture. In this version, how presentation structure interplays with the critical thinking levels of the participants and how they exerted their autonomy was analyzed.

3.9.2.6 Intervention Type 6: AT+N_LC

In this version, the input was presented in the same way with in version 2. However, there was learner control in version 6. That is, learners could start from whichever parts they wanted and organized their own learning process themselves. There was navigation flexibility among the components of the video in this version. Thus, in addition to the variables that were measured in version 2, the covariate that was analyzed in this version was learner autonomy. On the other hand, the interaction between the participants' critical thinking levels and the presentation structure of the video lecture (whole) was analyzed in this version.

All in all, six different versions of the video lecture were designed by the researcher, and each version was assigned to one experimental group. The modalities or versions were (1) Animation with simultaneous Narration and sequenced Text (AN+T) in a user-paced environment (see Figure 1), (2) Animation with simultaneous Text and sequenced Narration (AT+N) in a user-paced environment (see Figure 2), (3) Animation with simultaneous Narration and sequenced Text (AN+T_W), in a whole presentation, where students studied all the parts of a video in a system-paced design, and then they answered the related questions (see Figure 3), (4) Animation with simultaneous Narration and sequenced Text (AN+T_P) in a part-by-part presentation, in which students studied each part of a video, and then they answered the related questions (see Figure 4), (5) Animation with simultaneous Narration and sequenced Text (AN+T_LC) in a learner controlled presentation, in which students could start studying the video from any part they wanted (see Figure 5), (6) Animation with simultaneous Text and sequenced Narration (AT+N_LC), in a learner controlled presentation, in which students could start studying the video from any part they wanted (see Figure 6).

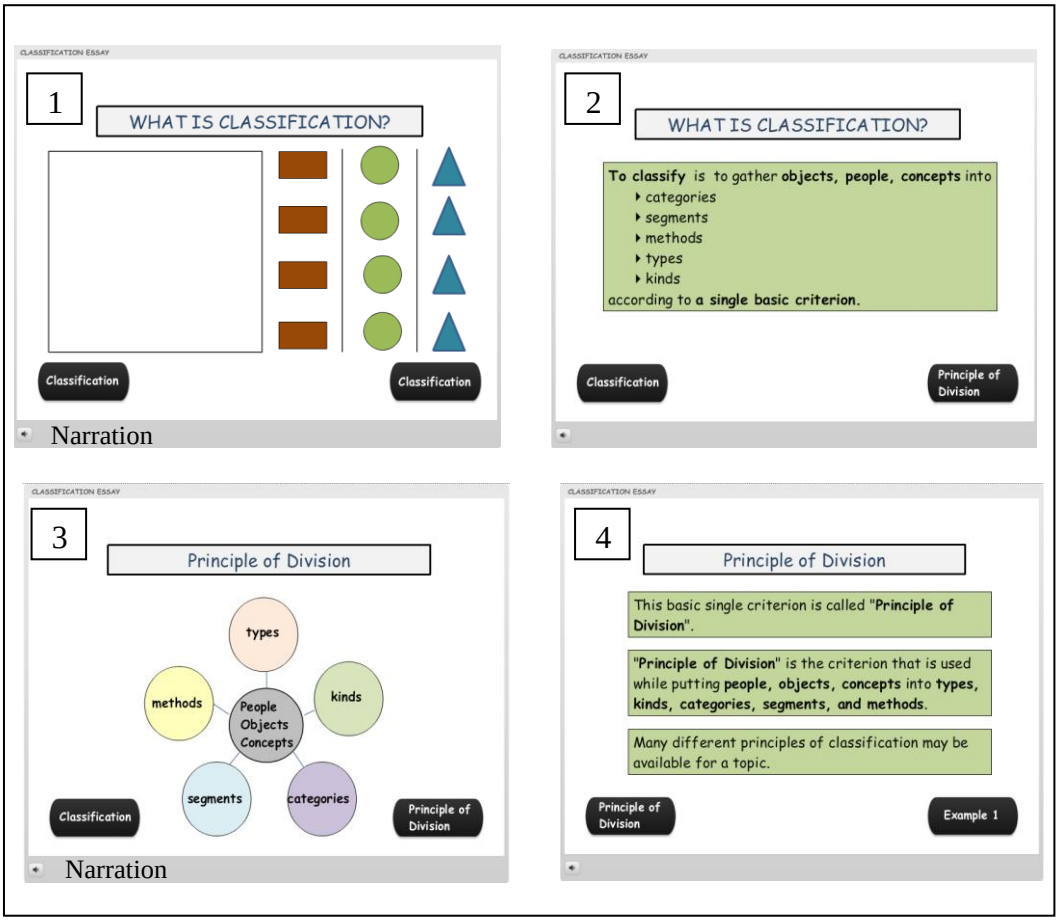

Figure 1. Sample screenshots of the first video lecture type (AN+T)

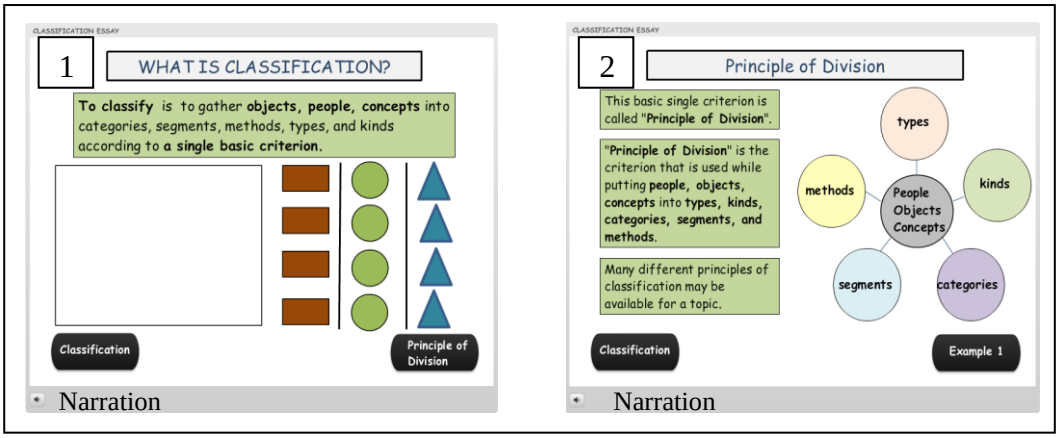

Figure 2. Sample screenshots of the second video lecture type (AT+N)

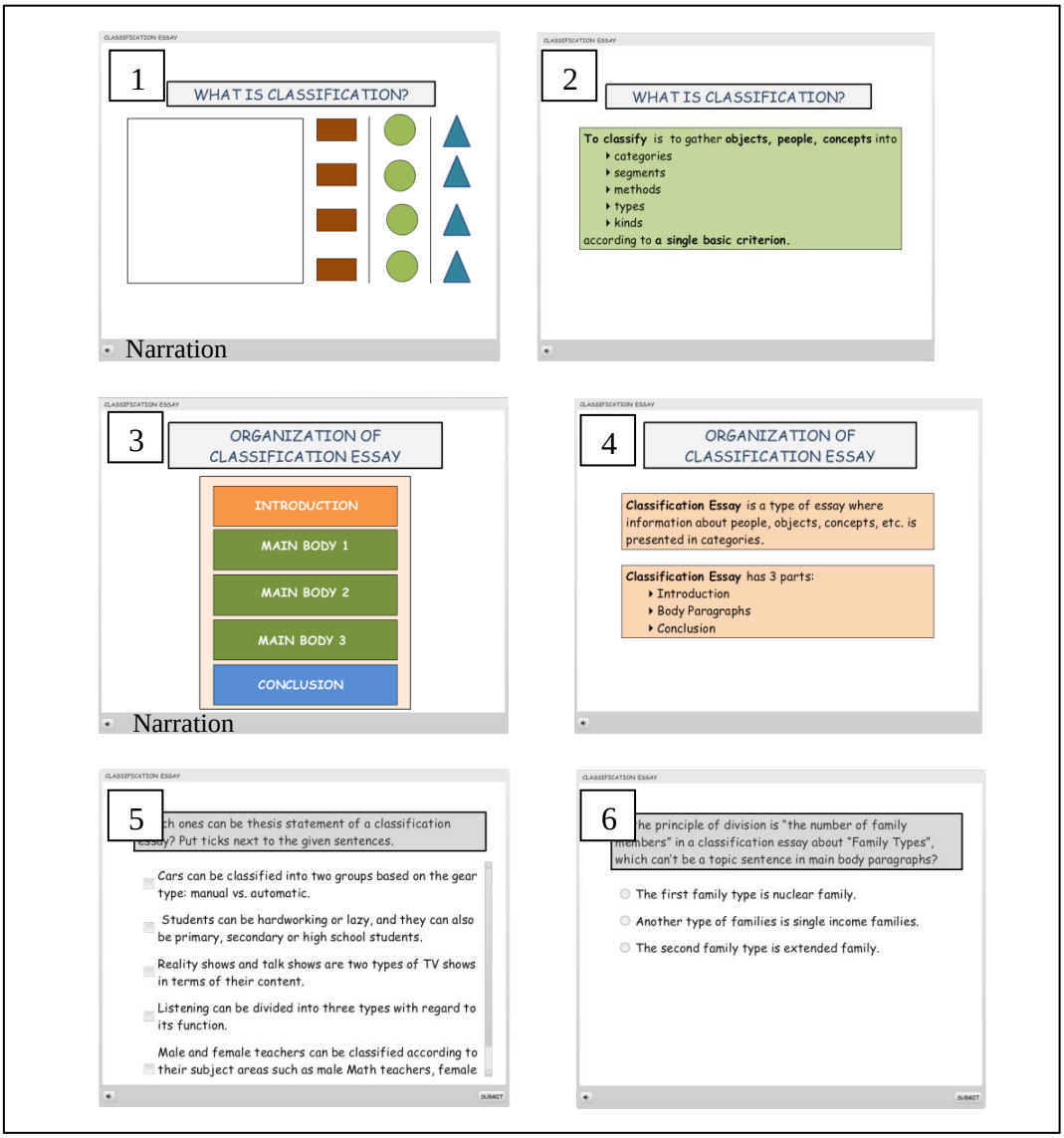

Figure 3. Sample screenshots of the third video lecture type (AN+T_W)

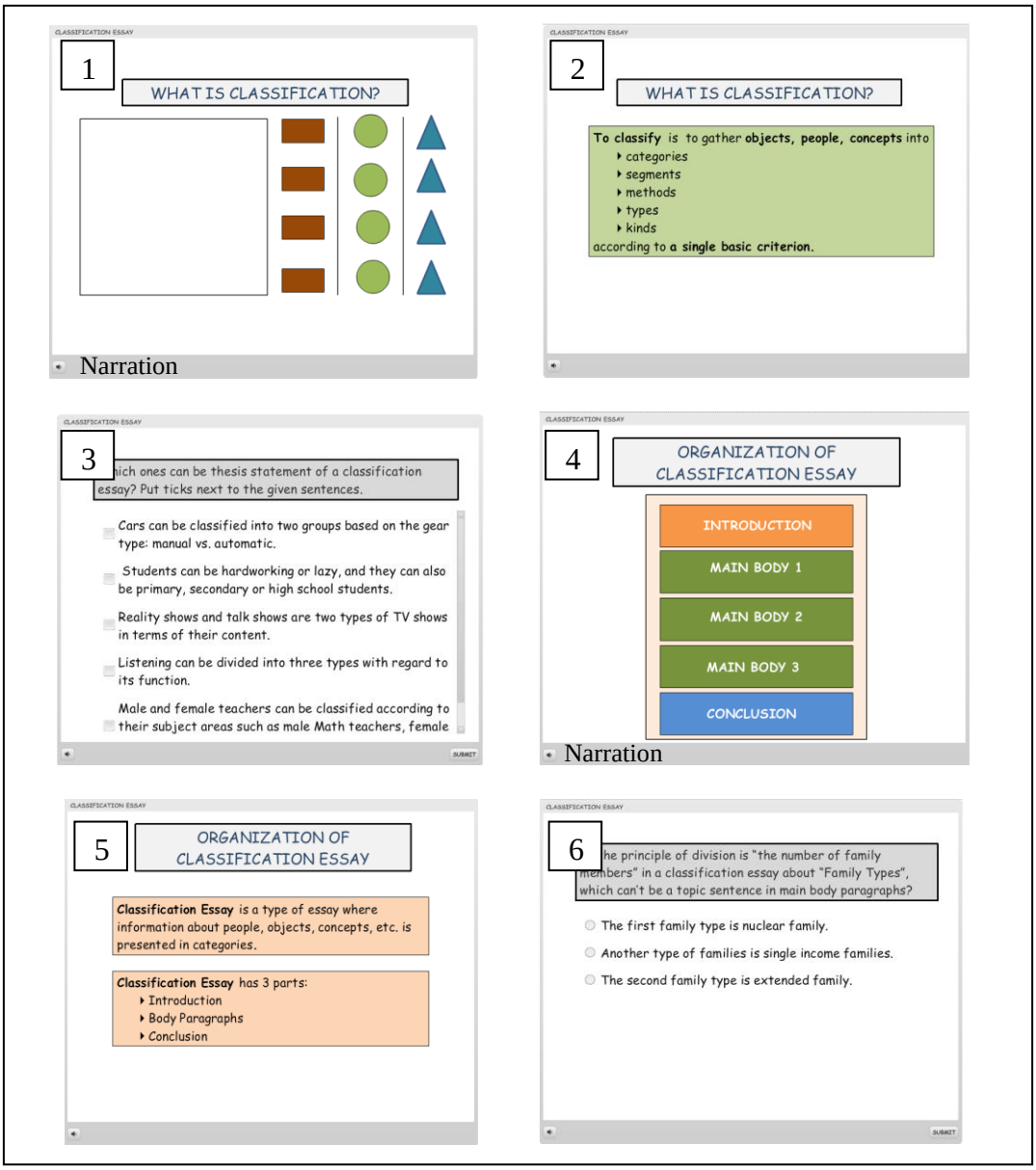

Figure 4. Sample screenshots of the fourth video lecture type (AN+T_P)

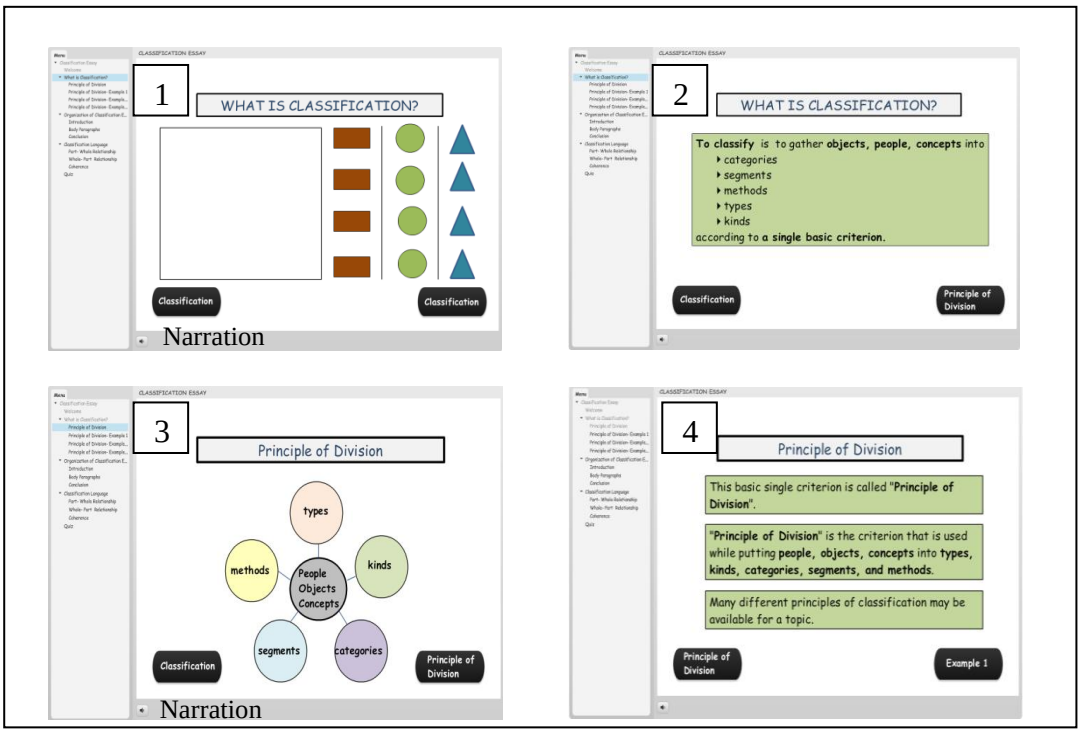

Figure 5. Sample screenshots of the fifth video lecture type (AN+T_LC)

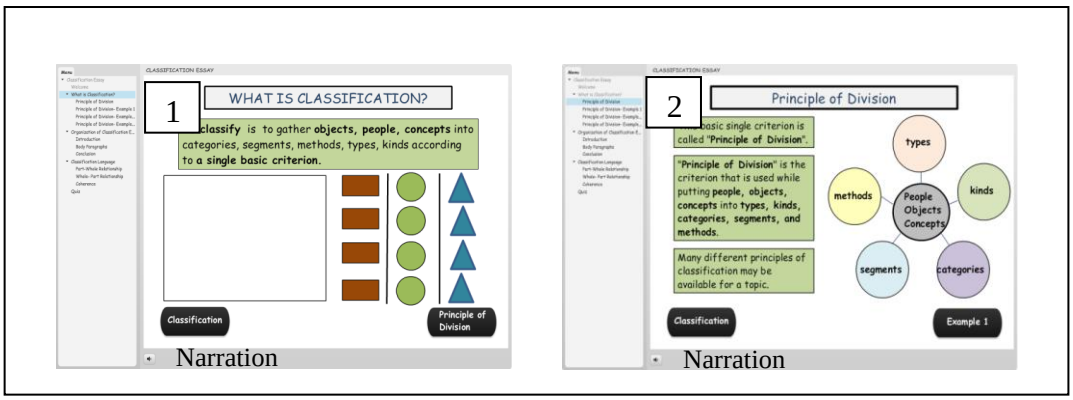

Figure 6. Sample screenshots of the sixth video lecture type (AT+N_LC)

3.10 Data collection procedures

Before starting to conduct the study, the approval was taken from the Institutional Review Board and Ethics Committee of the university and the administration of the intensive English program. Students were informed about the study. Consent forms had been prepared and distributed to the students before the intervention.

In the intensive English program, seven types of essays are covered throughout the year in English classes. These types are definition, classification, advantages and disadvantages, compare and contrast, cause and effect, problem and solution, and argumentative essays. In pre-intermediate level, 3 blocks are allocated to writing in a week, and each essay type is covered for two weeks. That is, 6 blocks (in total) are allocated for each type of the essay, and each block is 75 minutes. During the last two weeks in the first term, flipped instruction was applied for only one essay type because as Strayer (2012) states, flipping the whole syllabus at one time is risky, and in the first trial, 2-3 topics can be flipped. The essay type that was flipped is classification essay. Each type of essay is covered for two weeks, and in pre-intermediate level, 6 blocks (in total) are allocated to writing in two weeks.

Before the intervention, detailed lesson plans were given to the instructors (see Appendix I), and in order to keep the attendance stable, the researcher announced that the students participating in the study would get two bonus points for their writing portfolios. All groups took a pretest including an essay-type question (classification essay), and the scales of learning styles, learner autonomy, and critical thinking disposition were given to each group. After the pretest, the intervention was applied. The experimental groups were assigned to study the video lectures at home whereas the control group covered the same material in a traditional classroom setting. Each experimental group studied a different version (modality) of the video lecture. Moreover, at the end of video lectures, pre-class quizzes prepared on *Articulate Storyline* were given to students. The answers of the students were recorded so that the flipped classrooms instructors were able see which student had given correct or incorrect answers. The same quiz was given as a handout after the face-to-face lecture in the traditional classroom.

On the day after participants studied the videos, a conceptual posttest including matching and multiple choice questions was conducted. The conceptual posttest was given to measure the effect of video lectures and to see whether there is a significant difference between face-to-face lectures and video lectures in terms of participants' conceptual knowledge. Afterwards, classroom activities were conducted in both traditional and flipped classrooms. On the following day, each student wrote a practice essay. The brainstorming part (pre-writing session) was the same in traditional and flipped classrooms.

In flipped classrooms, the instructor gave immediate oral feedback while students were writing their essays. Moreover, the instructor took short notes regarding the student's question and his/her feedback so that the feedback given by the instructor could be tracked in flipped classrooms. However, in the traditional class, no feedback was given by the instructor because normally that essay would have been assigned as homework, and students wouldn't have been able to receive immediate oral feedback from their instructors while writing the essay at home. For research purposes, that is, in order to increase the reliability of the study, students in the traditional classroom wrote their practice essays in the class so that the instructor could check the time spent on the essay and whether students used only their dictionaries, not any other resources from which they might copy some sentences.

After this writing practice, the researcher, who was one of the experimental group instructors, gave feedback on all essays. In order to keep the feedback standardized, it was given by the same person, and it was given only on the organization of the classification essay and the useful language structures that can be used in a classification essay because these points were related to the instruction given to the participants in the videos.

After the students got their delayed written feedback on their practice essays in all groups, the posttest (essay writing) was given at the end of the intervention. The pretest and the posttest essays were assessed based on a data-driven rubric that was formed after collecting sample exam essays from the program students (see Tables 2, 3, and 4).

Table 2. Experimental Procedures I

	Traditional Classroom/ Control Group	Flipped Classroom/ Experimental Groups
Days 1- 5	(The lesson plan was given to the instructor.) Pretest Learner Autonomy Scale Learning Style Scale Critical Thinking Disposition Scale	(The lesson plans were given to the instructors.) Pretest Learner Autonomy Scale Learning Style Scale Critical Thinking Disposition Scale
Days 11- 15		Video lectures related to structures used in the classification essay and the organization of the essay were assigned to the participants to study at home.
Day 16	Hardcopy lecture materials (Appendix F) were delivered by the researcher, and a handout (Appendix H) was covered. Conceptual Posttest	Conceptual posttest
Day 17	Activities related to classification essay were covered in the class.	Activities related to classification essay were covered in the class.
Day 18	Students wrote their first practice essay.	Students wrote their first practice essay.
Day 18	All the essays were collected, and feedback was given the researcher to all essays.	All the essays were collected, and feedback was given the researcher to all essays.
Day 22	Students received their first essays with the written feedback on them.	Students received their first essays with the written feedback on them.
Day 23	Posttest (Essay Writing)	Posttest (Essay Writing)

Table 3. Experimental Procedures II- Traditional Classroom

Essay type: classification essay	Traditional Classroom
Day 16	- Hardcopy lecture materials and a handout (see Appendix F and H) were covered by the researcher in the class in 2 blocks. Conceptual Posttest (see Appendix D)
Day17	- Activities (see Appendix J) were covered by the instructor of the traditional classroom. (1 block)
Day 18	-Essay 1: For the essay topic 1 (Leisure Time Activities), determine the principle of division through brainstorming as a whole class. Then, the instructor divided students into 3 groups, and asked each group to search about one category that was mentioned in the essay. Afterwards, each group presented their findings and examples to the class so that a mind map was formed on the board. - -In-class writing: Students wrote the first classification essay. (50 minutes) - While writing, students did not receive any immediate oral feedback from the instructor. (1 block in total)
Day 18	Instructor collected the essays. The researcher gave them feedback.
Day 22	Students took their essays with the written feedback on them.
Day 23	Posttest (Essay Writing)

Table 4. Experimental Procedures II- Flipped Classroom

Essay type: classification essay	Flipped Classroom
Day 16	-Having studied the video lectures and taken the pre-class quiz (see Appendix G), participants were ready for in-class activities. -Conceptual posttest (see Appendix D) - After the conceptual posttest, instructor covered the hard-to-understand points based on the feedback taken from the pre-class quizzes and answers students' questions related to video lectures. - Activities (see Appendix K) were covered in class. (1 block)
Day 17	-Essay 1: For the essay topic 1 (Leisure Time Activities), determine the principle of division through brainstorming as a whole class. Then, the instructor divided students into 3 groups, and asked each group to search about one category that was mentioned in the essay. Afterwards, each group presented their findings and examples to the class so that a mind map was formed on the board. -In-class writing: Students wrote the first classification essay. (50 minutes) - While writing, students were able to receive immediate oral feedback from the instructor. (1 block in total)
Day 17	Instructor collected the essays. The researcher gave them feedback.
Day 22	Students took their essays with the written feedback on them.
Day 23	Posttest (Essay Writing)

3.11 Data analysis

3.11.1 Learner autonomy scale

For responses, a 5-point Likert Scale was used with the following response options: not true (1)/ rarely true (2)/ sometimes true (3)/ mostly true (4)/ always true (5). According to the participants' responses, their average scores of the scale were calculated. If the average is between 3.41- 5.00, it means that the learner is autonomous. If the average is 2.61- 3.40, it means that the learner is neither autonomous nor dependent. If the average is 1.00-2.60, it means that the learner is dependent.

3.11.2 Learning style inventory

For responses, a 5-point Likert scale was used with the following response options: strongly agree/ agree/ neutral/ disagree/ strongly disagree. There were 16 items for each learning style. According to participants' responses, their primary (dominant) learning style was defined.

3.11.3 Critical thinking disposition scale

For responses, a 5-point Likert scale was used with the following response options: totally agree (5)/ agree (4)/ neutral (3)/ disagree (2)/ totally disagree (1). The scores between 0- 49 show that the learners has low level of critical thinking disposition. The scores between 50- 99 indicate that the learner has a medium level of critical thinking disposition. The scores between 100- 150 indicate that the learner has a high level of critical thinking disposition.

3.11.4 Conceptual posttest

The questions in this posttest for conceptual knowledge were multiple-choice, matching or fill-in-the-blank questions, so the questions had only one correct answer. The total score was 25 points.

3.11.5 Pretest and posttest

The essays written in the pretest and the posttest were assessed based on a standardized rubric. The rubric, which is a data-driven one, includes bands such as very good/ good/ satisfactory/ unsatisfactory/ doubtful/ poor, and it was adapted to the classification essay for this study (see Appendix L).

This rubric was prepared by the testing office. In 2011, sample essays of students were selected among the essays that students wrote in the last exam of the first term. These sample essays were representatives of the bands. That is, in the midterm exams, an essay of a student is marked by two instructors. To create this rubric, the essays of the students who took satisfactory, doubtful, and unsatisfactory from both markers were collected. These bands were selected because they were the threshold bands and most of the student essays fell into these bands, which made data access easy. Forty essays (in total) were given to the markers who give consistent grades to the essays. Seventeen markers gave written feedback on these representative essays, and the consistent feedback taken from the markers formed the explanations of the each band in the rubric, and this rubric was aligned with the rubrics of the Common European Framework. As a result of the alignment process, adjustments were made. It was concluded that a student's passing grade which falls into satisfactory band is in the B2 band in the Common European Framework (A. Unaldi, personal communication, November 28, 2014).

The essays in this study were marked by two markers, and they were graded on bands. Each band has a numeric value such as very good= 20, good= 16, satisfactory= 12, doubtful= 10, unsatisfactory= 8, poor= 4. If there is more than one band (discrepancy) between the given scores, two markers come together, check the essay again, and come to an agreement. If there is only one band between the given scores, then the average of the scores is calculated. In this way, both pretest and posttest scores were calculated. Cohen's kappa coefficient for the pretest was .64, and it was .88 for the essay writing posttest.

After scoring the essays, a normality test was conducted in order to check the distribution of the students' posttest scores in each group. As the data of posttest scores in each group was normally distributed and the other assumptions were sustained, a MANCOVA was conducted for each intervention type in order to see the effects of videos (intervention types) on the conceptual posttest and the posttest(essay writing) scores by controlling the covariates such as participants' learning styles, autonomy levels and critical thinking disposition levels.

To analyze the learning gain, which is calculated by subtracting the pretest scores from the posttest scores, for each group, an ANCOVA was used while controlling the covariates. Furthermore, to test the effect of the intervention type (video lecture type) interacting with different levels of covariates on the conceptual posttest scores and posttest writing scores, two or three factorial ANOVA tests were carried out.

In order to find whether there is a significant difference resulting from different learning styles among the intervention types, a MANOVA was conducted in a group including neutral (neither autonomous nor dependent) participants with a high level of critical thinking disposition level. Additionally, correlation coefficients

between the posttests of the study and the components of the midterm exam that the participants just took before the intervention were measured.

CHAPTER 4

RESULTS

This section reports on the descriptive statistics for each intervention type, the normality of the data and the results of two posttests. It first examines whether the groups are equal in terms of the pretest scores using a one-way ANOVA. In order to detect any effects of the participants' learning styles, learner autonomy level, and critical thinking disposition level, two and three factorial ANOVA tests were conducted. Moreover, by controlling the covariates -learning style, learner autonomy, and critical thinking disposition level-, whether there are any significant differences among the groups, each of which received a different intervention, in the conceptual posttest and the essay writing posttest was examined through a MANCOVA.

The learning gain for each group was analyzed by using the covariates in the ANCOVA analysis. Following this, a major group which includes neutral (neither autonomous nor dependent) learners with high levels of critical thinking disposition, but having different learning styles was detected in the dataset. In order to find the effect of different learning styles in this group, a MANOVA was conducted on the conceptual and essay writing posttest scores of this group. Moreover, the correlations between the conceptual posttest, the essay writing posttest, and the midterm exam that the participants took just before the intervention were measured by calculating correlation coefficients for each group. Finally, the immediate oral feedback types that the participants in flipped designs took while they were writing the practice essay were described.

First of all, to check the normality of the continuous dependent variables, skewness and kurtosis values were measured. The normality of the conceptual

posttest and the essay writing posttest were checked through a Shapiro-Wilk test, and the results revealed that the dataset was normally distributed (see Appendix M, Table 15). Also, the values of skewness and kurtosis fell in the desired range (see Table 5). Subsequently, the descriptive statistics of each group were examined (see Table 6).

Table 5. Descriptive Statistics of the Dataset

	N	Skewness	Kurtosis	Mean	SD
Conceptual Posttest	127	-0.672	-0.076	21.2	2.87
Essay Writing Posttest	127	-0.031	0.913	11.1	2.13

Table 6. Descriptive Statistics of Each Group

Intervention Types		Conceptual Posttest		Essay Writing Posttest	
	n	Mean	SD	Mean	SD
AN+T	15	21.6	3.37	11.0	2.36
AT+N	18	22.7	1.87	11.1	1.29
AN+T_W	20	21.7	2.65	12.3	2.43
AN+T_P	17	20.4	2.42	11.7	1.92
AN+T_LC	21	21.0	2.98	11.0	1.04
AT+N_LC	18	20.9	3.28	11.0	1.58
Traditional Lecture	18	19.7	2.29	9.3	2.89

As the covariates are categorical variables, the normality tests could not be conducted on them. Instead, normality tests on the raw learner autonomy and critical thinking disposition scores were carried out. The skewness and kurtosis values were +1.69 and +0.06 for learner autonomy, and -0.98 and +0.29 for critical thinking disposition respectively (see Appendix M, Table 16). It was found that the

distribution of both covariates was normal based on the continuous raw scores.

In order to see whether the groups were equal in terms of pretest scores, a one-way ANOVA was conducted on the pretest scores. First, descriptive statistics for each group in the pretest were examined (see Appendix M, Table 17).The assumptions of ANOVA -the normality and homogeneity of variance- were checked through Shapiro-Wilk and Levene's tests respectively (see Appendix M, Tables 18 and 19). Assumptions were sustained. Then, a one-way ANOVA was conducted, results of which showed that all groups were almost equal before the intervention ($F(6, 120) = 1.27$, $p = .27$) (see Appendix M, Table 20).

On the other hand, to see the effects of participants' learning styles, learner autonomy, and critical thinking disposition level in different intervention types, two- and three-way ANOVA tests were conducted on the conceptual test and the essay writing posttest scores. No significant effect size was found in the groups (see Table 7).

To see the effects of the intervention types on the conceptual posttest and essay writing posttest scores by controlling the covariates, namely, learning style (LS), learner autonomy (LA), and critical thinking disposition level (CTD), a MANCOVA was conducted. Before conducting MANCOVA, the assumptions were tested. In order to see whether there were any outliers in the dataset, the mahalanabois distance for each participant was calculated. This value should be at most 13.82 for two continuous dependent variables, which is the case in this study (Pearson & Hartley, 1958, as cited in Akbulut, 2010). Based on the mahalanabois distance calculated for each participant, no outliers were found in the dataset. Linearity was checked through the visual inspection of the scatter plots. Moreover, tests to see if the data met the assumption of collinearity indicated that

multicollinearity was not a concern (see Appendix M, Table 21). Moreover, the correlation coefficient between the conceptual posttest and the essay writing posttest was 0.22 (p = .011), which does not violate the assumption for MANCOVA. Based on The Box's Test of Equality of Covariance Matrices, the homogeneity of covariance across the groups was found to be equal (p >.001).

Table 7. Effect Sizes of the Covariates

	η^2 Conceptual Posttest	η^2 Essay Writing Posttest
Intervention * LS	.08	.23
Intervention * LA	.08	.13
Intervention * CTD	.08	.07
Intervention * LS*LA	-	.005
Intervention * LS*CTD	-	-
Intervention * LA*CTD	-	-
Intervention * LS*LA*CTD	-	-

Since all the assumptions were met, a MANCOVA was conducted. As for the conceptual posttest, a significant difference was found between the second group, which received the AT+N type, (n = 18) and the control group (n = 18) receiving traditional lectures (p = .04). The group receiving the AT+N intervention outperformed the control group (see Table 8).

Table 8. MANCOVA for the Conceptual Posttest

Conceptual Posttest	Intervention Types	Mean Difference	SD	p
AT+N	AN+T	1.0	3.37	1.00
	AN+T_W	1.0	2.65	1.00
	AN+T_P	2.3	2.42	.24
	AN+T_LC	1.9	2.98	.61
	AT+N_LC	1.9	3.28	.82
	Traditional Lecture	2.9*	2.29	.04

In the analysis of the essay writing posttest, it was found that the third group, which took AN+T_W, (n = 20, M = 12.3, SD = 2.43) and the fourth group, which studied AN+T_P, (n = 17, M = 11.7, SD = 1.92) outperformed the control group (n = 18, M = 9.3, SD = 2.89) receiving the traditional lecture in the posttest essay writing (p = 0 and p = .018 respectively) (see Table 9).

Table 9. MANCOVA for the Essay Writing Posttest

Essay Writing Posttest	Intervention Types	Mean Difference	SD	p
AN+T_W	AN+T	1.5	2.36	.46
	AT+N	1.6	1.29	.31
	AN+T_P	0.9	1.92	1.00
	AN+T_LC	1.5	1.04	.27
	AT+N_LC	1.5	1.58	.35
	Traditional Lecture	3.1*	2.89	.00
AN+T_P	AN+T	0.6	2.36	1.00
	AT+N	0.7	1.29	1.00
	AN+T_W	-0.9	2.43	1.00
	AN+T_LC	0.6	1.04	1.00
	AT+N_LC	0.6	1.58	1.00
	Traditional Lecture	2.2*	2.89	.018

In order to examine the groups in terms of learning gain, an ANCOVA was conducted on learning gain, which is the difference between the pretest and the essay writing posttest, by using the covariates after the normality and homogeneity of the data were checked (see Table 10). The results indicated that there was a significant difference between the traditional group and the third, fourth, and sixth intervention groups in the learning gain. The AN+T_W and AN+T_P groups outperformed the traditional group in learning gain (p = .001; p = .004 respectively). Additionally, a significant difference was found between the sixth group (AT+N_LC) and the control/traditional lecture group (p = .007).

Table 10. ANCOVA for the Learning Gain

Learning Gain	Intervention Types	Mean Difference	SD	p
Traditional Lecture	AN+T	-1.7	2.54	.515
	AT+N	-1.8	1.70	.214
	AN+T_W	-2.8*	2.58	.001
	AN+T_P	-2.9*	1.29	.004
	AN+T_LC	-1.8	1.53	.179
	AT+N_LC	-2.7*	1.43	.007

Out of 127 participants, 52 were visual, neutral (neither autonomous nor dependent) and had high critical thinking disposition levels. As the number of participants was not sufficient for other combinations of the covariates, this group was analyzed so that a meaningful result might be found. First, the distribution of the group was found to be normal based on the skewness and kurtosis threshold of ±2.58 (Rose, Spinks & Canhoto, 2014). In terms of the conceptual posttest, the skewness

value was -1.76 while the kurtosis value was -0.28. In the posttest (essay writing), the skewness value of this group is +0.38 whereas the kurtosis value was +2.06. Thus, in order to see the effects of the intervention type on the dependent variables, a MANOVA was conducted for the conceptual test and the essay writing posttest after all the assumptions for the MANOVA were met. The effect of the intervention types on the scores in the conceptual posttest was not meaningful. In the essay writing posttest, however, the third group, which received the AN+T_W, significantly outperformed the other groups (see Table 11).

Table 11. MANOVA for the Major Group

Essay Writing Posttest	Intervention Types	Mean Difference	SD	p
AN+T_W	AN+T	4.8*	1.23	.006
	AT+N	5.1*	1.18	.002
	AN+T_P	4.6*	1.21	.009
	AN+T_LC	5.0*	1.21	.003
	AT+N_LC	5.1*	1.21	.002
	Traditional Lecture	6.0*	1.21	.000

On the other hand, two more groups with 21 and 23 participants were found in the dataset. The participants in one group (n = 23) were kinesthetic, neutral (neither dependent nor autonomous), and had high level critical thinking disposition levels. In the other group, participants (n = 23) were auditory, neutral (neither dependent nor autonomous), and had high level critical thinking disposition levels (see Table 12).

Table 12. Descriptive Statistics of the Major Groups

	Conceptual Posttest			Essay Writing Posttest		
Major Groups	N	Mean	SD	N	Mean	SD
Visual*Neutral*High Critical Thinker	52	20.8	2.91	52	11.1	2.11
Auditory*Neutral*High Critical Thinker	23	21.9	2.18	23	11.7	2.21
Kinesthetic*Neutral*High Critical Thinker	21	21.8	2.65	21	10.9	1.91

Thus, among these three groups (n = 52, 21, and 23 respectively), the only covariate that changed from group to group was the learning style. The other covariates such as learner autonomy and critical thinking disposition level were in the same level across the groups. That is, all participants in these three groups were neither autonomous nor dependent (neutral) learners having high levels of critical disposition. Thus, whether there was a significant difference resulting from different learning styles among these groups was examined. After all the assumptions mentioned above were met, a MANOVA was conducted. No significant difference was found among the learning styles of the groups. Although there was not a significant difference, the mean for each learning style in each intervention type was calculated to see which group taking a different intervention type had the highest average in the conceptual and essay writing posttests.

As it can be seen from Figures 7 and 8, visual learners who studied the intervention type 2 (AT+N) outperformed the visual learners who studied the other types whereas the ones studying the intervention type 6 (AT+N_LC) had the lowest scores in the conceptual posttest. When it came to the essay writing posttest, it was clear that the visual learners studying the intervention type 3 (AN+T_W) got the

highest scores in the essay writing posttest. The visual learners who took the traditional lectures got the lowest scores.

As for the auditory learners in the conceptual posttest, it was so obvious that the ones studying the first type (AN+T) got the highest scores whereas the ones studying the fifth intervention type (AN+T_LC) received the lowest scores. In the essay writing posttest, the auditory participants who studied the first (AN+T) and the third intervention (AN+T_W) types got the highest grades. The essay writing posttest average of the auditory students in the traditional class is the lowest (see Figures 7 and 8).

Kinesthetic learners who studied three intervention types (AN+T_W, AT+N_LC, traditional lectures) got similar results in the conceptual posttest. The ones studying the first intervention type (AN+T) got the lowest scores. In the posttest essay writing, the ones in the traditional classroom got the lowest average whereas the ones who studied the intervention type 4 (AN+T_P) had the highest average (see Figures 7 and 8).

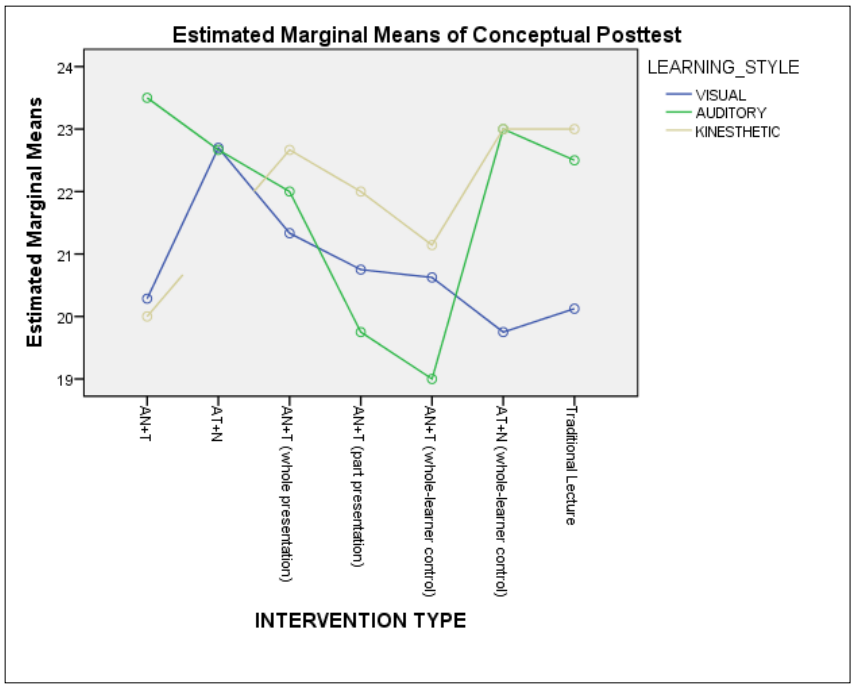

Figure 7. Group means in conceptual posttest

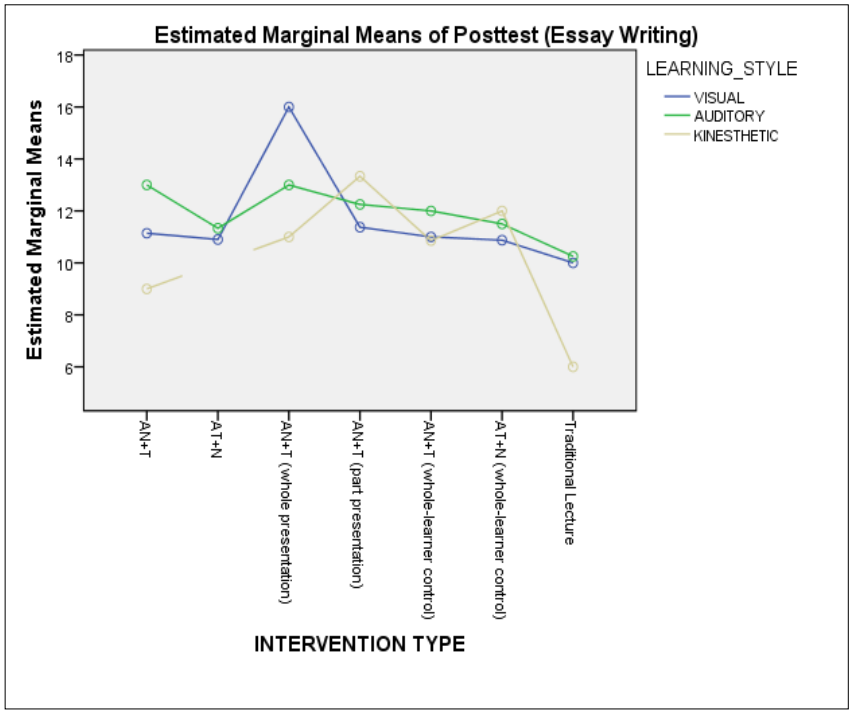

Figure 8. Group means in essay writing posttest

In addition to these analyses, seven correlation analyses were conducted. Just before the intervention, all the experimental groups and the control group took their midterm exams, which consisted of grammar, reading, listening, vocabulary, and writing components. It is accepted that there are four main language skills: listening reading, writing, and speaking. The gluing mechanics for these skills are vocabulary and grammar. Therefore, the way writing as a skill correlated with the other skills and the mechanics of language, which were tested in the midterm exam, was analyzed, and some significant correlations were found in the groups.

As shown in Table 13, in the first intervention group (AN+T), a significant correlation was found between the reading component and the conceptual posttest ($r(13) = .51$, $p = .04$). Moreover, the total midterm exam scores correlated with the conceptual posttest significantly ($r(13) = .51$, $p = .04$). In the second group (AT+N), a significant correlation was found between the grammar component and the essay writing posttest of this study ($r(16) = .50$, $p = .03$). There was also a significant

correlation between the vocabulary component and the conceptual posttest of the study ($r(16) = .52$, $p = .02$).

In the third group (AN+T_W), no significant correlation was found between the exam components and the posttests of the study. In the fourth group (AN+T_P), grammar, listening, reading, and exam writing scores were found to correlate with the conceptual posttest of the study ($r(15) = .49$, $p = .04$; $r(15) = .60$, $p = .01$; $r(15) = .49$, $p = .04$; $r(15) = .57$, $p = .01$ respectively). In the fifth group (AN+T_LC), the grammar, reading, and listening components of the midterm exam were found to correlate with the conceptual posttest ($r(19) = .49$, $p = .02$; $r(19) = .45$, $p = .03$; $r(19) = .46$, $p = .03$ respectively).

In the sixth group (AT+N_LC), no significant correlation was found. In the control group receiving the traditional lectures, the grammar and listening components of the midterm exam and the total midterm score were found to be significantly correlated with the essay writing posttest ($r(16) = .54$, $p = .01$; $r(16) = .50$, $p = .03$; $r(16) = .48$, $p = .04$ respectively).

Table 13. Correlation Coefficients between Midterm Exam and Posttests

Intervention Types		Conceptual Posttest			Essay Writing Posttest	
		n	*r*	*p*	*r*	*p*
AN+T	Reading	15	.51	.04	-	-
	Total Exam Score		.51	.04	-	-
AT+N	Grammar	18	-	-	.50	.03
	Vocabulary		.52	.02	-	-
AN+T_W		20	-	-	-	-
AN+T_P	Grammar	17	.49	.04	-	-
	Listening		.60	.01	-	-
	Reading		.49	.04	-	-
	Exam Writing		.57	.03	-	-
AN+T_LC	Grammar	21	.49	.02	-	-
	Listening		.46	.03	-	-
	Reading		.45	.03	-	-
AT+N_LC		18	-	-	-	-
Traditional Lecture	Grammar	18	-	-	.54	.01
	Listening				.50	.03
	Total Exam Score				.48	.04

Finally, the types of feedback given to the experimental (flipped class) groups while they were writing the practice essay were categorized (see Table 14). They all received immediate oral/verbal feedback while writing. According to Ellis (2009), the corrective feedback can be on linguistic forms/accuracy, organization, and content.

Table 14. Distribution of Feedback Types

Intervention Types	*n*	Feedback on accuracy	Feedback on organization	Feedback on content
AN+T	15	-	6	9
AT+N	18	1	3	14
AN+T_W	20	1	11	8
AN+T_P	17	5	11	1
AN+T_LC	21	14	7	-
AT+N_LC	18	2	11	5

CHAPTER 5

DISCUSSION

The aim of this study was two-fold. The first was to measure the effect of flipped design in English writing classes, and the second was to investigate the effect of different modalities of multimedia representations used in video lectures. Until now, flipped classroom studies have generally compared the flipped classroom and the traditional classroom. However, by taking learner characteristics into account, different flipped designs can be found to be appropriate for a specific group of learners. Thus, learning style, learner autonomy, and critical thinking disposition scales were administered in this study. In order to see the effects of different video types in this study, various analyses including MANCOVA, ANOVA, MANOVA, and analysis of correlation coefficient were conducted.

The essay type on which the intervention was conducted was classification essay, and an essay topic (Types of TV programs) was assigned to the participants as the pretest. Based on the pretest scores and ANOVA results, it is possible to conclude that none of the participants were familiar with the essay type. Since classification essay was the second essay type that the students tried to learn, they were not knowledgeable enough about the basic organization of an essay, which resulted in more accurate measurement of the interventions' effects in this study.

No significant effects of learning style, leaner autonomy, or critical thinking disposition level were found on the conceptual and the essay writing posttests. As for learning styles, the reasons for small effect size are attributable to the fact that today's learners are from the millennial generation, and they were born into a world where technology is ubiquitous. Therefore, they are accustomed to the different kinds

of input even if these do not match their learning styles. That is, they are able to compensate for the missing input type since they are fluent in multimedia use (Dede, 2005). Although they appreciate having or attending multimedia lessons, it is highly probable that they are not aware whether the input type overlaps with their learning styles because involvement in technology and multitasking are ways of life for them, which enables them to handle input that is in a different modality from their learning style in educational settings (Rivera & Huertas, 2006). Another reason for the small effect size is likely to result from the design of the videos in the study. Although they include multimedia, there might have been problems related to the timing of narrations, diagrams, and previous- next buttons.

When it comes to learner autonomy, it is obvious that learner autonomy plays an important role in computer-assisted and blended learning. It is also considered to be influential in flipped classroom settings as learners are required to study lecture videos at home outside the classroom setting without any teacher intervention or encouragement (Lander & Kuramoto, 2013). However, in this study, the effect size of learner autonomy was found to be small on the posttest results because most of the participants were neutral. That is, most of the participants were neither autonomous nor dependent, which may result in no significant effect sizes. If more dependent or autonomous had been found in the dataset, a large effect of learner autonomy might be seen especially in the video types assigning more control to learners such as intervention types 5 and 6.

As far as the critical thinking disposition level was concerned, different structures of the presentations such as part-by-part and whole presentations were supposed to relate to the critical thinking disposition since the questions that were asked in-between the video components or at the end of the whole video might

trigger critical thinking. However, in the dataset of the study, there were very few participants with a low level of critical thinking disposition. Therefore, how different levels of critical thinking disposition interact with the interventions and any significant effect size of critical thinking disposition was not found.

The effects of the intervention types including different modalities on the conceptual posttest and the essay writing posttest scores were examined by controlling the covariates (learning style, learner autonomy, critical thinking disposition) through MANCOVA. A significant difference was found among the groups in the conceptual posttest. It has been found that the group studying the AT+N outperformed the control group (traditional class) in the conceptual posttest. This finding does not comply with the dual channel theory (Paivio, 1986) or the cognitive load theory (Sweller, 1988), which assert that human beings have two channels —visual and auditory— to process input and that animation/diagram and on-screen text should not be presented together in order to avoid the cognitive load in the visual channel respectively. This finding does not align with the modality principle (Mayer, 2005) in multimedia learning which states that pictures/graphs/diagrams should be presented with narration rather than on-screen text to offload the cognitive load in the visual channel, either.

Additionally, it seems to be violating the redundancy principle which states that diagram, on-screen text, and narration should not be presented to learners at the same time; however, Moreno and Mayer (2002) argue that when a third modality, which can be either visual or auditory, is presented sequentially, it does not result in any redundancy effect. By contrast, Kalyuga, Chandler, and Sweller (1999) point out that presenting too many visual elements such as diagrams and on-screen text overburdens the visual channel of learners; thus, it results in split attention because

learners need to pay attention to all visual elements at the same time and the working memory does not allow this since it has a limited capacity. It is also accepted that one of the ways to eliminate the split attention effect is to design the visual elements spatially close to each other so that learners are not required to search for the related visual items, which also complies with the principle of spatial contiguity in multimedia learning (Kalyuga, Chandler & Sweller, 1999; Mayer, 2005). In this study, as all related visual elements were placed close to each other in all intervention types, the participants studying the AT+N intervention type might not have had any problems in terms of the split attention.

The fact that the group studying the AT+N type, which presents animation (diagram) and text simultaneously, and the narration follows them, got higher grades than the control group receiving the traditional lecture, which was most probably a synchronous combination of the text on the board and the instructor's explanation, in the conceptual posttest can be explained with the nature of the question types in the conceptual posttest. The conceptual posttest included matching, odd-one-out, and fill-in-the blank (by choosing the correct given words from a box) questions. That is, while answering the questions in the conceptual posttest, the participants were required only to recognize and recall the words or the structures presented to them in the video lectures.

Therefore, it is plausible to infer that when a diagram is presented together with on-screen text, it awakes the learner's attention as the on-screen text in this study is regarded as the key words for the following narration. To clarify, the on-screen text in the videos might have the role of signaling and giving clues about the input content in the narration. Later, when a more comprehensive narration (see Appendix N) followed the key words on the screen, the participants could revise the

on-screen keywords, consolidate the input, and expand it as the narration included more details than the keywords on the screen. And, all of this process might enhance rote learning, and therefore, recall and recognition.

In the essay writing posttest, two groups studying the AN+T_W and AN+T_P video lectures outperformed the control group. These intervention types first presented animation/diagram and narration simultaneously, and then on-screen text followed them. This type of design is consistent with the dual channel assumption (Paivio, 1986), the cognitive load theory (Sweller, 1988), and the modality principle (Mayer, 2005). As animation/diagram and narration were offered to learners simultaneously, learners could utilize both their visual and auditory channels so that neither the visual nor the auditory was overloaded. The redundancy effect was not a threat for this design since when the third modality is presented sequentially, it does not give rise to any redundancy effect (Moreno & Mayer, 2002). Therefore, as these designs were in accordance with the theories and the multimedia design principles, it was highly possible for them to result in meaningful learning, which is the ultimate goal of multimedia learning (Mayer, 2001).

In harmony with this assumption, the results of this study show that the participants who studied the types AN+T_W and AN+T_P were able to transfer their conceptual knowledge into a production task more successfully than the control group. The essay writing posttest was accepted as the production task in this study because essay writing is a demanding process that requires putting many language-related components such as grammar and vocabulary together in order to make or produce meaningful and grammatical sentences (Obilişteanu, 2009). Thus, it is probable to deduce that the groups which studied the types whose design was based on theories and multimedia principles had enhanced meaningful learning since the

learners were able to analyze and harmonize the knowledge they had gained during the input session and to transfer it to a production task.

On the other hand, no significant difference between part-by-part and whole presentation types was found. This is probably due to the fact that the majority of the sample had high level of critical thinking disposition levels; therefore, the ways different levels of critical thinking disposition interact with two different video presentation types was not observed. Moreover, the questions that were asked in-between the components of the videos in part-by-part presentation aimed to encourage the learners to think more critically before moving to the following parts, which would have been more beneficial for the learners who have low level of critical thinking disposition. However, as the majority of the participants had high levels of critical thinking disposition in this study, those questions might have created an expertise reversal effect (Kalyuga, Ayres, Chandler, & Sweller, 2003). To clarify, instead of enhancing the learning process, the questions might have become redundant for the learners who had high levels of critical thinking disposition.

Another case that needs to be clarified is the reason for which no significant difference was found in the fifth group, which received the AN+T_LC type. Although the input was presented in the same modality as the outperforming groups, this fifth group was not so successful. The possible reason is related to learner control. In this fifth type, the learners were able to start from whichever part they wanted. That is, the flow of the lesson depended on learner preference. As neutral learners constituted the majority of the sample, these learners might have gotten lost in the computer-based instruction and had difficulties progressing in the lesson. Thus, the participants in this group did not get as high grades as the ones in the outperforming groups. On the other hand, the route that the participants in this group

followed on the computer screen could not be controlled since it was not possible to do eye-tracking in this study, which is a limitation.

A majority group was found in the dataset. This group included 52 participants who were visual neutral learners having high levels of critical thinking disposition. When the whole sample was analyzed, the two groups studying the AN+T_W and AN+T_P videos were found to be more successful in the essay writing posttest. However, of this majority group, only the AN+T_W group outperformed the other groups. This can be explained by the specific learner characteristics of the majority group. Since the whole presentation was system-paced, that is, no learner control was required, the neutral (neither dependent nor autonomous) learners in this majority group might have been able to benefit from the computer-based instruction more because they were not asked to go backward or forward within the lesson. Furthermore, the part-by-part presentation in particular was considered to trigger critical thinking as the questions were asked in-between the video parts. However, because this group included participants with a high level of critical thinking disposition, the interplay of the presentation type and the critical thinking disposition level was vague.

When it comes to the correlation analysis between the midterm exam that the participants took just before the intervention and the posttests of this study, it is seen that significant correlations were found between the midterm exam components and the posttest in all of the groups except the third and sixth ones. In the first group, which studied the AN+T intervention type, the reading component of the midterm exam, the total exam score, and the conceptual posttest were found to be significantly correlated. However, this first group was not the outperforming one in the conceptual posttest because it is plausible to argue that the conceptual posttest did not require

much reading proficiency, which was tested in the reading component of the midterm exam, because it included only matching and multiple-choice questions. That is, it aimed to measure recognition and recall instead of comprehension. Therefore, taking high scores in the reading component of the midterm exam had no direct effect the conceptual posttest scores for this group.

In the second group, which took the AT+N intervention type, a meaningful correlation was found between the vocabulary component of the midterm exam and the conceptual posttest, which supports the argument made previously that presenting diagrams and text simultaneously, and then the narration sequentially may enhance recognition and recall. Vocabulary learning also requires recognition and recall, and recall and recognition tests are used to test vocabulary knowledge (Jones, 2004). Thus, the participants who were good at recognizing and recalling the vocabulary items in the midterm exam succeeded in integrating these skills into the input provided to them in the third intervention type and answered correctly most of the matching and multiple-choice questions in the conceptual posttest. Moreover, although the participants in this group were considered to be good at recall and recognition when their scores of the vocabulary component in the midterm exam were analyzed, their performance in the conceptual posttest was remarkable also because of the fact that they were exposed to the vocabulary items and the structures, which were tested in the conceptual posttest, in a multimedia learning environment. To clarify, the pictorial, written, and narrative annotations of those vocabulary items and structures were provided to the participants in this group, and Jones and Plass (2002) assert that when language learners have access to both pictorial and written annotations and listened to a narration, they score higher on a written vocabulary recognition test than those receiving only one annotation or no annotation.

On the other hand, grammar scores of the midterm exam and the essay writing posttest scores were found to be correlated in this group studying the AT+N intervention type. Although this group was able to benefit from their recognition and recall skills in the conceptual posttest, they were unable to transfer the grammar knowledge tested in the midterm exam to the essay writing posttest, which was a production task, probably because of the intervention type they studied since presenting diagrams and on-screen text simultaneously, which was the case in this group, caused overload in the visual channel (Paivio, 1986; Sweller, 1988; Mayer, 2001). Therefore, this overload may have hindered meaningful learning, which is the result of knowledge transfer to novel cases.

In the third group, which received the AN+T_W intervention type, no significant correlation was found between the midterm exam components and the posttests. It is likely that the performance of this group in both of the posttests was directly affected by the intervention type that they received. Moreover, this group was one of the two groups that outperformed the other groups in the essay writing posttest, which strengthens the interpretation that when the diagrams and narration are presented simultaneously, and then they are followed by on-screen text, knowledge transfer and meaningful learning are enhanced since this type of presentation does not create any cognitive load in either of the channels (Paivio, 1986; Sweller, 1988; Mayer, 2001).

As for the fourth group, which received the AN+T_P intervention type, although the grammar, listening, reading, and writing components of the midterm exam were found to correlate with the conceptual posttest, this group did not outperform the others in the conceptual posttest most probably because the vocabulary component was not among the ones correlating with the conceptual

posttest. As the conceptual posttest required recognition and recall similar to vocabulary learning, if any correlation of the conceptual posttest with the vocabulary component of the midterm exam had been found, then significant results might have been yielded. This interpretation is also valid for the fifth group, which studied the AN+T_LC intervention type. Although the grammar, reading, and writing components of the midterm exam correlated with the conceptual posttest in the fifth group, this group did not perform better than the other groups in the conceptual posttest. In the sixth group, which received the AT+N_LC intervention, no significant correlation was found.

In the control group, which received traditional lectures, although grammar, listening components, and the total midterm exam score were found to correlate with the essay writing posttest, the essay writing posttest scores of this group were the lowest. This is probably because of the fact that they did not receive the input in a multimedia environment. That is, the instructor lectured, and the participants followed what was being lectured in their booklets, and these included no visual input such as diagrams. That is, the control group only received narration and text (simultaneously or sequentially) as the input.

In this study, the participants in the flipped classes received both immediate oral/verbal corrective feedback and delayed written corrective feedback whereas the students in the control group took only delayed written corrective feedback when they wrote the practice classification essay on the topic of leisure time activities. Delayed written corrective feedback, which focused on linguistic forms/accuracy and organization, was given to all groups on their essays, and it was delivered by the researcher to keep it standard. No delayed written corrective feedback was given on content, which is beyond the scope of the instruction given in this study, whose main

aim was to teach the organization of the classification essay and the useful structures that can be used in that type of essay. However, the flipped groups received immediate verbal/oral corrective feedback from their instructors while writing the essays, focusing on aspects of writing such as accuracy, organization, and content. To keep track of the feedback, the instructors were asked to note down the feedback that they gave to their students and to encourage each student to ask at least one question related to their essays. When the types of the feedback given by the instructors were examined, some interpretations were made regarding the groups' performance in the essay writing posttest.

When the feedback given to the first group, which received the AN+T video lecture, was analyzed, it could be seen that most of the students, that is, nine out of 15 students in this group asked questions related to the vocabulary usage, and so they received feedback focusing on content. Only six students asked questions about the organization of their essays, which is the aspect that was tested in the essay writing posttest. Therefore, it is possible to infer that although the intervention type presented to this group complies with the dual channel assumption (Paivio, 1986), the cognitive load theory (Sweller, 1988), and the multimedia learning theory (Mayer, 2001), one of the possible reasons why this group was unable to perform particularly well in the essay writing posttest is that the students in this group did not receive accuracy- or organization-related feedback while writing their essays in class. Nevertheless, the essays were checked using a rubric focusing on the organization of the classification and the use of specific target language structures.

In the second group, which studied the AT+N video lecture, only four students out of 18 asked questions related to the classification essay organization and the language structures to be used. Therefore, it can be concluded that receiving

almost no feedback on the accuracy and organization affected their essay writing performance negatively, and this is one of the probable reasons of this group's low performance in the essay writing posttest.

The third group, which studied the AN+T_W video lecture, outperformed the control group in the essay writing posttest, which can be linked to the feedback type that the students in this group received while writing their essays in class. Twelve out of 20 students received either accuracy-related or organization-related feedback, the effects of which could be clearly seen in the essay writing posttest scores. Moreover, the fact that the students asked questions related to the organization or the target language structures in class shows that they had concentrated on what had been presented to them while studying the video lectures at home so that they could ask questions that were related to the video lecture during the practice essay writing activity. It is plausible to deem this as one of the pillars of meaningful learning because the students in this group were able to analyze and synthesize the information presented to them in the video, and then transferred and used it in a production task.

In the fourth group, which studied the AN+T_P intervention type, only one student out of 18 asked the meaning of a word. All other students asked questions related to the organization and the target language structures, and got feedback accordingly. Therefore, the effect of accuracy- and organization-focused feedback given to this group was reflected in their essay writing posttest scores. That is, this group also outperformed the control group in the essay writing posttest.

Although all of the students in the fifth group, who received the AN+T_LC intervention type, asked questions about organization or the target language structures, no significant difference was found between this group and the other

groups in the posttests. Thus, this lack of significant difference can be attributed to the students' autonomy level in this group. As this intervention type enabled the participants to start from whichever component they wanted in the video, it required autonomy. However, 17 students out of 21 were found to be neutral (neither autonomous nor dependent) in this group, and the results show that they might have had difficulties progressing in the video lecture instruction.

The last flipped class, which is the sixth group, received the AT+N_LC intervention type. Out of 18, only five students asked about vocabulary. That is, the majority of the group asked questions concerning the organization and useful language structures. However, this group also included 12 neutral learners, which may have resulted in their being lost in the video lecture, and so they were not able to harmonize what they had studied on the computer and the feedback they took while writing.

CHAPTER 6

CONCLUSION

In this study, the effects of the flipped design and of different video modalities on essay writing achievement in English were examined by taking the participants' learning styles, learner autonomy levels, and critical thinking disposition levels as the covariates in a quasi-experimental design. Which intervention type that was designed according to the multimedia design rules of Mayer (2005) affected student essay writing performance most and whether the learner characteristics such as learning styles, autonomy, and critical thinking disposition affected the writing achievement in a flipped design were the main questions of the study.

In the six experimental groups, the structure of writing classes was changed. That is, students in those classes were asked to allocate their out-of-class time to study the instruction in the video lectures. Therefore, the structure of classes was different for both the students and the teachers in those groups. The students had to study the instruction in the video lectures so that they became ready for the class. The teachers had to change the design of their writing lessons since they were able to spend more time on practice essay writing in the class. Although the amount of instruction given to the students was same with its amount in the traditional class, the time spent studying and understanding the instruction was distributed for the experimental groups, which is the core pillar of flipped designs.

Most of the participants were neutral (neither dependent nor autonomous) in the study, and they became more successful when the video lecture was system-paced. That is, when these neutral participants were not required to click on the

buttons and pace the instruction, they were able to proceed in the video lectures more easily. It is plausible to state that this result is related to leaner autonomy. If Moore's transactional distance theory (1993) is taken into consideration, it is clear that the more autonomous learners are, the less structure they need. On the contrary, when learners are dependent or neutral, they need the structure which probably prevents them from getting lost in a multimedia learning environment and enables them to follow the instruction properly, which is the case in the present study. That is, the neutral participants in the present study needed scaffolding of the instruction structure, namely, the design of video lectures.

On the other hand, when the control in the multimedia learning environment was given to them, the participants could not act autonomously and plan their own learning, which is clearly seen from the posttest results of the fifth and sixth groups in which the participants had the flexibility of starting from whichever component they wanted. Although the route the participants in these groups followed in the video lectures could not be detected, it is possible to regard little structure/more learner control as the factor affecting the learning outcomes.

In the present study, the findings from the conceptual posttest point out that in a multimedia instruction if animation and on-screen text are presented simultaneously and followed by narration, it may strengthen the memory and so enhance recall. As for the essay writing posttest, it was found that the groups studying the AN+T_W and AN+T_P videos outperformed the control group. That is, the participants in those groups were able to transfer their conceptual knowledge into a production task better. Therefore, it is tenable to argue that when an instruction in a video lecture is designed in harmony with the principles of the cognitive theory of multimedia learning (Mayer, 2005), it triggers knowledge transfer.

Additionally, while designing video lectures in a flipped class, it is essential that learner needs and learner characteristics be considered. In this study, learning styles, learner autonomy levels, and critical thinking disposition levels of the participants were measured since those elements were considered to be influential in a flipped multimedia learning environment. Although a significant effect of those covariates was not found in this study, measurement of the learning style, autonomy, and critical thinking in different learning environments may yield crucial results for designers and teachers.

A further point that needs to be elaborated on is the in-class activities that were conducted in all groups. Despite the fact that the in-class activities were the same in all groups, how they were completed is likely to differ from one class to another one. In the present study, when all activities were done, the participants wrote their practice essays. However, the students in the control group did not receive any immediate oral feedback from the teacher whereas the ones in the experimental groups did. From the findings, it is clearly seen that the students in the groups that got better scores than the control group in the essay writing posttest asked more questions about the essay organization and got their feedback accordingly. Therefore, it is plausible to argue that they got more engaged in the writing process since they focused on synthesizing what they had studied in the video lectures and their own ideas about the essay topic in a proper way, which necessitates high-order thinking skills.

Based on these findings, it is suggested that designers or teachers base the multimedia instruction, which is a video lecture in flipped classrooms, on theories and assumptions. When multimedia design principles are taken into account, the learning process may become less painful for both teachers and learners. It is highly

probable that the process results in meaningful learning. In addition, it should be proposed that teachers or designers always prioritize learner needs and learner characteristics while designing learning environments. Learners should always be able to make associations between the instruction in video lectures and in-class activities, and in-class activities should encourage learners to be involved in high-order thinking and active learning. Moreover, as Strayer (2012) also recommended, flipping should start with small steps. Teachers and instruction designers should not flip the curriculum of a whole year. Furthermore, the length of video lectures should be reasonable depending on the topic covered. For instance, each video lecture took approximately 20 minutes in this study. As a last recommendation, it is always better to let teachers prepare videos for their own classes instead of using ready-made videos.

Although this study provides guidelines for teachers and instruction designers who plan to flip their courses, there were limitations to the study which should not be ignored. As the sample was drawn from a specific context (the intensive English program at a state university whose medium of instruction is 100% English), and the materials prepared by that university's curriculum committee were used in the study, the external validity (generalizability of the results to the population) of the study is relatively low. All of the video lectures were prepared by the researcher. However, the activities in the traditional (control) and flipped (experimental) classes were conducted by 7 different instructors, one of whom was the researcher. As the teaching style of instructors is difficult to standardize, this may decrease the internal validity of the study. Detailed lesson plans for writing classes were given to the instructors in order to keep variance at minimum. Additionally, the number of the participants was small. That is, no data could be found for some levels of the

covariates when the analyses were conducted. In addition to this, not all participants in the flipped classes completed the pre-class quiz given in the video lectures. On the other hand, an eye movement tracking system could not be used in the study, which resulted in difficulties in examining the scores of the groups receiving the fifth and sixth intervention types, which were based on learner control. Participants in these groups could start at whichever part they wanted; however, the route each participant followed while studying the video lesson could not be detected due to the lack of the necessary system. Because of time constraints, a training session on how to progress in the computer-based video lessons could not be given to the participants, and they could not be asked to write drafts of the practice essay, which is the routine in the program because process writing is adopted in the classes.

As for future research, the number of participants should be increased, and if duration of future studies gets longer, it will become more possible to give a training session to participants and to have enough time to write drafts. A similar study can be conducted on a different sample having different characteristics. All participants in flipped classes should be required to take the pre-class quiz before class time so that the effect of questions answered correctly on posttest scores can be analyzed. The materials used in this study should be adapted for use at other universities so that the external validity of the study may increase. Either eye-movement tracking or screen-recording should be implemented so that the route learners -whose autonomy levels are supposed to be different- follow can be detected easily. Lastly, if it is possible, all class activities should be done by the same instructor.

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APPENDIX A

LEARNER AUTONOMY SCALE (ÖĞRENCİ ÖZERKLİĞİ ÖLÇEĞİ)

LEARNER AUTONOMY SCALE (The scale was translated into English by the researcher.)

1=not true/ 2=rarely true/ 3= sometimes true/ 4=mostly true/ 5= always true	1	2	3	4	5
1- When learning English, I try to make associations between what I know and what I'm learning.					
2-I prefer using books and resources written in English.					
3-When I hear someone studying English, I try to listen to him/her carefully.					
4- I want to speak English with my family and my friends.					
5-I read books written in simple English.					
6-When learning English, I prefer self-study exercises.					
7-When learning English, I like trying new methods on my own.					
8-When studying a topic without the teacher's guidance, I have concerns about understanding it.					
9-I don't like being obliged to learn English by myself.					
10-I can understand the topic that I can't study in English class by myself.					
11-When learning English, an English teacher's guidance makes me feel relaxed.					
12-I can learn English only with the teacher's guidance.					
13-I always need my teacher's guidance to learn English.					
14-When learning English, I prefer my teacher to explain the grammar rules again and again.					
15-I feel happy when my teacher explains every detail about the English lesson.					
16-I would like to continue learning English on my own/ without the teacher's help in the future.					
17-I like English group projects in which I can work with other students.					
18-I can study English grammar on my own/ without a teacher.					
19-I use my own methods to learn vocabulary in English.					
20-I like learning English vocabulary by looking up words in a dictionary.					
21-I can learn English grammar rules only with my teacher's guidance. I can't learn them by myself.					
22-I prefer my teacher to give me the list of words that I need.					
23-I want to use foreign language learning tools such as tape/ video / CD outside the classroom.					
24-In fact, I prefer to read and listen to materials outside the classroom.					
25-I would like to choose foreign language learning materials by myself.					
26-I want to share the responsibility for what to do in English classes.					
27-I know how I can learn English best.					
28-I feel responsible if I can't understand a subject in an English lesson.					
29-I prefer to determine the topics which will be taught in English lessons.					
30-If I get a good grade in the exam, I don't study those subjects anymore.					
31-I think my friends are better than me in English. I would like to catch up with them.					
32-I have concerns about how to consolidate the topics I have missed in English classes.					
33-I believe that my English level will become good.					
34-I study English only for the exams.					
35-I think that I learn English better when I study on my own.					
36-I study English only when I do homework.					
37-It is more beneficial to study English with my friends instead of studying on my own.					
38-I study English only when teacher give us grades.					
39-I like taking different exam types to written exams.					
40-I like having many exams for English lessons.					
41-I try to understand jokes in the language that I am learning.					
42-I also examine the culture of the language that I am learning.					
43-I also try to find proverbs and idioms in the language that I am learning.					
44-I ask questions people who lived abroad about people's lifestyles in those countries.					

ÖĞRENCI ÖZERKLIĞI ÖLÇEĞI

1= hiçbir zaman doğru değil / 2= nadiren doğru/ 3=bazen doğru/ 4= çoğu zaman doğru/ 5=her zaman doğru	1	2	3	4	5
1- İngilizce öğrenirken bildiklerimle yeni öğrendiklerim arasında ilişkiler kurmaya çalışırım.					
2- İngilizce yazılmış olan kitaplardan ve kaynaklardan kendi isteğimle faydalanırım.					
3- İngilizce çalışan bir insan duyduğumda onu çok dikkatlice dinlemeye çalışırım.					
4- Arkadaşlarımla veya ailemle İngilizce konuşmak istiyorum.					
5- Basit İngilizce ile yazılmış olan kitapları kendi isteğimle okurum.					
6- İngilizce öğrenirken kendi kendime öğrenebileceğim alıştırmaları severim.					
7- İngilizce öğrenirken kendi kendime yeni şeyler denemeyi severim.					
8- İngilizce bir konuyu öğretmen anlatmazsa, onu öğrenemeyeceğim diye korkarım.					
9- İngilizceyi kendi kendime öğrenmek zorunda kalmayı sevmem.					
10- İngilizce dersinde öğrenemediğim konuyu tek başıma çalışarak öğrenebilirim.					
11- İngilizce öğrenirken öğretmenimin yanımda olması beni rahatlatıyor.					
12- İngilizceyi sadece öğretmenin yardımıyla öğrenebilirim.					
13- İngilizce öğrenmem için öğretmenim bana her zaman yol göstermelidir.					
14- İngilizce öğrenirken öğretmenimin dilbilgisi kurallarını tekrarlayarak anlatmasını isterim.					
15- Öğretmenim bize İngilizcedeki her ayrıntıyı anlatınca sevinirim.					
16- Gelecekte İngilizceyi tek başıma/öğretmenim olmadan öğrenmeye devam etmeyi isterim.					
17- Diğer öğrencilerle çalışabileceğim İngilizce proje ödevlerinden hoşlanırım.					
18- İngilizcenin dil bilgisini kendi kendime/ öğretmene gerek duymadan öğrenebilirim.					
19- İngilizcedeki sözcükleri öğrenmek için kendi yöntemlerimi kullanırım.					
20- İngilizcedeki sözcükleri sözlük karıştırarak geliştirmeyi severim.					
21- Sadece öğretmenim İngilizce dil bilgisi kurallarını bana öğretebilir. Tek başıma öğrenemem.					
22- Öğreneceğimiz sözcükleri öğretmenin vermesini isterim.					
23- Yabancı dil derslerimle ilgili kaset/video/CD'leri sınıf dışında kullanmak isterim .					
24- İngilizce okumayı ve dinlemeyi aslında sınıf dışında yapmayı tercih ederim.					
25- Yabancı dil derslerim için malzemeleri kendim seçmek isterim.					
26- İngilizce dersinde neler yapılacağı konusunda sorumluluk paylaşmak isterim.					
27- Ben İngilizceyi nasıl en iyi şekilde öğrenebileceğimi bilirim.					
28- İngilizce dersindeki bir konuyu öğrenmemişsem, sorumlusu benim.					
29- İngilizce dersinde öğretilecek konuları kendim belirlemek isterim.					
30- Yazılıdan iyi bir not alınca, bir daha o ders konularını çalışmam.					
31- Arkadaşlarımın yabancı dilde benden daha iyi olduğunu düşünürüm. Onların seviyesine					
32- İngilizce derslerimle ilgili eksiklikleri nasıl telafi edeceğim konusunda endişelenirim.					
33- İngilizcede iyi bir seviyeye geleceğime inanıyorum.					
34- İngilizceyi sınav olacağımız zaman çalışırım.					
35- İngilizceyi kendi kendime çalışınca daha iyi öğrendiğimi düşünüyorum.					
36- İngilizce dersini sadece öğretmenimin verdiği ödev için çalışırım.					
37- İngilizceyi yalnız çalışmaktansa arkadaşlarımla çalışmak bana daha faydalı oluyor.					
38- İngilizce alıştırmaları sadece öğretmenim not vereceği zaman çalışırım.					
39- Öğretmenimin yazılı sınavlardan daha farklı sınav türleri yapması hoşuma gider.					
40- Öğretmenimin İngilizce dersi için çok sınav yapması hoşuma gider.					
41- Öğrendiğim yabancı dildeki fıkraları anlamaya çalışırım.					
42- Öğrendiğim yabancı dilin kültürünü de araştırırım.					
43- Öğrendiğim yabancı dilin atasözlerini ve deyimlerini de araştırırım.					
44- Yurtdışında yaşamış olan insanlara, oradaki insanların yaşam biçimleriyle ilgili sorular sorarım.					

APPENDIX B

BIGS-16 LEARNING STYLE INVENTORY

(BİGS-16 ÖĞRENME STİLLERİ ENVANTERİ)

BIGS-16 LEARNING STYLE INVENTORY (The scale was translated into English by the researcher.)

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	I like listening and talking to my friends.					
2	I like learning by watching others.					
3	I need to repeat some items in order not to forget.					
4	I need some visuals when putting pieces of a whole together.					
5	Sitting in a class during one lesson hour is boring for me.					
6	I can understand details on a map easily.					
7	I generally use body language when talking.					
8	I like making up rhymes or songs when trying to memorize something.					
9	I like reading and writing.					
10	I like fixing objects.					
11	I generally touch the spot where I am going to sit with my hands before sitting.					
12	I can easily differentiate similar and dissimilar geometric shapes.					
13	Even if they are similar, I can easily differentiate melodies and sounds.					
14	When listening to somebody, I like doodling on paper.					
15	If I sometimes wander around the room when I study, I think I can learn better.					
16	When studying, I need to wander around the room and take frequent breaks.					
17	I can generally recall the songs that I knew in my childhood.					
18	I like activities that require physical coordination such as dance, sport, and aerobics.					
19	I prefer standing up and solving a problem on the board rather than solving it in my notebook when sitting in class.					
20	I want my teacher to dictate the important points in the class so that I can take notes.					
21	I can remember certain words and the intonation of a person even after a few days of talking to them.					
22	I generally repeat loudly what I listen to.					
23	I remember the objects that I use and touch better.					
24	I like handcraft activities.					
25	I remember printed visual things most easily.					
26	I don’t have difficulty in understanding what a person with a different accent says.					
27	I like sport and exercise.					
28	I can draw a shape that I have seen on a piece of paper correctly.					
29	I learn best when someone clarifies and explains something.					
30	I can easily recall faces and visual details from photographs.					
31	I like learning by listening to my own voice recording.					
32	I like communicating by using gestures.					
33	I like small group discussions.					
34	I am good at using machines and devices.					

	BIGS-16 LEARNING STYLE INVENTORY (Continued)	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
35	I can easily recall the size, shape, and color of objects.					
36	I generally write down the things that I read or listen to in order not to forget.					
37	I can easily visualize what I read and hear.					
38	I like pantomimes.					
39	I can follow the plot of a story broadcast on the radio.					
40	I am good at recognizing colors.					
41	I like painting and sculpture.					
42	I understand verbal explanations better than written ones.					
43	I can find places described best when some signs such as certain buildings or tree locations are given.					
44	I can understand a taped lesson.					
45	I like the courses that include hands-on activities.					
46	I understand written explanations better than verbal ones.					
47	When I hear a word with a different pronunciation and spelling are different, I can spell it.					
48	I learn better when I see new information in charts and drawings.					

BİGS-16 ÖĞRENME STİLLERİ ENVANTERİ

		Kesinlikle katılıyorum	Katılıyorum	Kararsızım	Katılmıyorum	Kesinlikle katılmıyorum
1	Arkadaşlarımı dinlemekten ve onlara bir şeyler anlatmaktan hoşlanırım.					
2	Başkalarını izleyerek öğrenmeyi severim.					
3	Bazı şeyleri unutmamak için kendi kendime tekrarlama ihtiyacı duyarım.					
4	Bir bütüne ait parçaları bir araya getirirken yardımcı resim ya da çizimlere ihtiyaç duyarım.					
5	Bir ders saati boyunca sınıfta oturmak bana sıkıcı gelir.					
6	Bir haritadaki ayrıntıları genellikle zorlanmadan anlayabilirim.					
7	Bir şeyler anlatırken genellikle vücut dilini kullanırım.					
8	Bir şeyler ezberlerken kendimce kafiyeler ya da şarkılar uydurmayı severim.					
9	Bir şeyler okumayı ya da yazmayı severim.					
10	Bir şeyler tamir etmekten hoşlanırım.					
11	Bir yere otururken, oturmadan önce genellikle ellerimle dokunurum.					
12	Birbirine benzeyen ve benzemeyen geometrik şekilleri kolayca ayırt edebilirim.					
13	Birbirine yakın da olsalar, farklı melodileri ve sesleri kolayca ayırt edebilirim.					
14	Birisini dinlerken kağıt üzerine, dinlediklerime ilişkin şekiller çizmeyi severim.					
15	Çalışırken arada kalkıp dolaşırsam daha iyi öğrendiğimi düşünürüm.					
16	Çalışırken kalkıp dolaşmaya ihtiyaç duyarım ve sık sık ara veririm.					
17	Çocukken öğrendiğim şarkıları genellikle iyi hatırlarım.					
18	Dans, spor ve aerobik gibi fiziksel koordinasyon gerektiren etkinliklerden hoşlanırım.					
19	Derste bir problem yerimde ve kağıt üzerinde çözmektense kalkıp tahtada çözmeyi tercih ederim.					
20	Derste öğretmenin önemli bilgileri not ettirmesini isterim.					
21	Dinlediğim bir kişinin sarfettiği belli sözcükleri ve ses tonunu birkaç gün sonra bile hatırlayabilirim.					

		Kesinlikle katılıyorum	Katılıyorum	Kararsızım	Katılmıyorum	Kesinlikle katılmıyorum
22	Dinlediğimi çoğu kez sesli olarak tekrarlarım.					
23	Dokunduğum ve kullandığım nesneleri sonradan daha iyi hatırlarım.					
24	Elle yapılan çalışmalardan hoşlanırım.					
25	En kolay hatırladığım şeyler basılı ya da resimli olarak gördüklerimdir.					
26	Farklı aksanla konuşan insanların söylediklerini anlamakta çok zorlanmam.					
27	Fiziksel sporlar ve egzersizlerden hoşlanırım.					
28	Gördüğüm bir şekli, doğru bir şekilde kağıda çizebilirim.					
29	Herhangi bir şeyin en iyi, birisi anlatarak açıkladığında öğrenirim.					
30	İncelediğim bir fotoğraftaki yüzleri ve diğer görsel ayrıntıları sonradan rahatlıkla hatırlayabilirim.					
31	Kendi sesimi teybe kaydedip -dinleyerek öğrenmekten hoşlanırım.					
32	Konuşmadan, işaretlerle iletişim kurmayı severim.					
33	Küçük grup tartışmalarını severim.					
34	Makine ve araç kullanmakta başarılıyımdır.					
35	Nesnelerin büyüklüklerini, şekillerini ve renklerini kolaylıkla hatırlayabilirim.					
36	Okuduğum ya da dinlediğim şeyleri, unutmamak için genellikle yazarım.					
37	Okuduğum ya da duyduğum şeyleri, zihnimde kolaylıkla canlandırabilirim.					
38	Pantomim yapmayı severim.					
39	Radyodan yayınlanan bir hikayede geçen olayları takip edebilirim.					
40	Renkler konusunda gözüm iyidir.					
41	Resim ya da heykel yapmayı severim.					
42	Sözlü açıklamaları, yazılı olanlara göre daha iyi anlarım.					
43	Tarif edilen yerleri en iyi, belirli bina ya da ağaç gibi işaretler verildiğinde bulabilirim.					
44	Teypten verilen bir dersi anlayabilirim.					
45	Uygulamalı çalışmalar içeren dersleri severim.					
46	Yazılı açıklamaları, sözlü olanlara göre daha iyi anlarım.					
47	Yazılış ve okunuşu farklı bir sözcük duyduğumda, o sözcüğün harflerini tek tek kodlayabilirim.					
48	Yeni bilgileri çizelge ya da çizimler halinde gördüğümde daha iyi öğrenirim.					

APPENDIX C

CRITICAL THINKING DISPOSITION SCALE

(ELEŞTİREL DÜŞÜNME EĞİLİMLERİ ÖLÇEĞİ)

CRITICAL THINKING DISPOSITION SCALE (The scale was translated into English by the researcher.)

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1) I support my ideas with information I get from reliable sources.					
2) I try to understand other people's viewpoints.					
3) Before making a decision, I determine the supporting points as much as the topic allows.					
4) I don't question the reliability of my sources.					
5) Before answering a question, I try to understand it fully.					
6) I think that my viewpoint is the right one.					
7) I make decisions based on vague supportive points instead of clear ones.					
8) I answer a question in the way I understand it when it is asked.					
9) I try to learn all aspects of an event to make the right decisions.					
10) When solving a complicated problem, I examine it by using certain principles.					
11) If I understand some parts of an idea/ a view, I don't make an effort to understand it fully.					
12) I try to objectively examine even ideas I don't approve of.					
13) When it is necessary to make a complicated decision about an incident, I don't examine that incident fully.					
14) I ignore information that supports the ideas I reject.					
15) I postpone making a decision if I don't have enough knowledge.					
16) I determine the supportive points of the idea I defend.					
17) I never ignore what the main problem is when solving a problem.					
18) I immediately make a decision about an event that I encounter even if I don't have the required information.					
19) I don't question the reasons for the problems I face.					
20) I have difficulty in concentrating on a topic.					
21) When solving problems of the incidents I encounter, I keep their reasons in my mind.					
22) If there are clear faults, I give up supporting my own idea.					
23) In order to make a decision about an event, I try to understand emotions, knowledge, and culture of the related people.					
24) I ignore the cause of a problem when discussing it.					
25) When it is necessary to make a decision, I collect as much information as I can before I make it.					
26) When it is necessary to make a decision about an idea, I ignore the emotions, knowledge, and culture levels of the person who supports that idea.					
27) I never give up supporting my own ideas during a discussion even if they are mistaken.					
28) In order to understand an incident well, I take all the options related to the incident into consideration.					
29) I put into practice the first idea that comes to my mind.					
30) I either accept or reject an idea without collecting the relevant information.					

ELEŞTİREL DÜŞÜNME EĞİLİMLERİ ÖLÇEĞİ

	Hiç katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Tamamen katılıyorum
1) Düşüncelerimi güvenilir kaynaklardan edindiğim bilgilerle desteklerim.					
2) Diğer insanların olaylara bakış açılarını anlamaya çalışırım.					
3) Bir karara varmadan önce dayanak noktalarımı konunun izin verdiği ölçüde kesinleştiririm.					
4) Bilgi edindiğim kaynağın güvenirliliğini sorgulamam.					
5) Bana yöneltilen bir soruyu yanıtlamadan önce soruyu tam olarak anlamaya çalışırım.					
6) Doğru olan bakış açısının kendi bakış açım olduğunu düşünürüm.					
7) Kesin dayanak noktaları yerine belirsiz dayanak noktalarından yola çıkarak karara varırım.					
8) Bir soruyu ilk duyduğum andaki anladıklarımla yanıtlarım.					
9) Bir olayla ilgili doğru karar verebilmek için olayı tüm boyutlarıyla bilmeye çalışırım.					
10) Karmaşık bir problemi çözerken problemin parçalarını belirli ilkelere uyarak incelerim.					
11) Bazı boyutlarını anladığım düşüncelerin tüm boyutlarını anlamak için çabalamam.					
12) Onaylamadığım görüşleri bile tarafsızlıkla anlamaya çalışırım.					
13) Karmaşık bir durumla ilgili karar vermem gerektiğinde durumun parçalarını belirli kurallar çerçevesinde ele almam.					
14) Reddettiğim düşünceleri destekleyen bilgileri dikkate almam.					
15) Konuyla ilgili yeterince bilgim yoksa karar vermeyi ertelerim.					
16) Savunduğum düşüncenin dayanak noktalarını belirlerim.					
17) Bir problemin çözümü sırasında asıl problemin ne olduğunu aklımdan çıkarmam.					
18) Karşılaştığım bir durumla ilgili kararımı yetersiz bilgiye sahip olsam da hemen veririm.					
19) Karşılaştığım sorunların nedenlerini sorgulamam.					
20) Bir konu üzerinde yoğunlaşmakta zorlanırım.					
21) Karşılaştığım durumlarla ilgili problemleri çözerken problemleri çözme nedenlerimi aklımda tutarım.					
22) Hatalı olduğu açık bir şekilde belliyse kendi düşüncemden vazgeçerim.					
23) Bir durumla ilgili doğru karar verebilmek için durumla ilgili insanların duygularını bilgi ve kültür düzeylerini öğrenmeye çalışırım.					
24) Fikir tartışmaları sırasında tartışmanın neden yapıldığını aklıma getirmem.					
25) Karar vermem gerektiğinde konuyla ilgili toplayabildiğim kadar bilgi toplarım.					
26) Bir düşünceyle ilgili karar vermem gerektiğinde düşünce sahibinin duygularını, bilgi ve kültür düzeylerini dikkate almam.					
27) Yanlış olsalar da tartışma sırasında kendi düşüncelerimden vazgeçmem.					
28) Karşılaştığım bir durumu iyi anlayabilmek için durumla ilgili tüm seçenekleri dikkate alırım.					
29) Bir durumla ilgili aklıma gelen ilk kararı uygularım.					
30) Bir düşünceyi hakkında yeterince bilgi toplamadan kabul ederim veya reddederim.					

APPENDIX D

CONCEPTUAL POSTTEST

1) Where can you find the items below in a classification essay? Write "I" for introduction, "MB" for main body, and "C" for conclusion.

Explanation of each category ……	Principle of division …….
Thesis statement ……..	Introduction of the topic ……
Summary of the main ideas ……..	Restatement of the thesis statement …….

2) Which one can't be the thesis statement of a classification essay?

a. Cars can be classified based on the fuel type.
b. What friendship means changes from person to person.
c. Based on where they can be done, activities are classified into two categories.
d. Social media websites can be categorized with respect to their functions.

3) Which one is not an appropriate thesis statement for a classification essay?

a. Students can be categorized in terms of their achievement: low-achievers and high-achievers.
b. Geometrical shapes can be categorized based on the number of their sides.
c. Shops can be classified with respect to their sizes and what they sell.
d. Computers can be categorized in terms of their processors.

Cross out the category that is NOT related.

4) Animals: sea animals / wild animals / land animals / sky animals
5) Meals: breakfast / dinner / high-fat / lunch
6) Schools: private schools / primary schools / secondary schools / high schools

Fill in the blanks with the given words below and choose the correct relationship type. There are two extra words.

classified	under	into	of	with
kind of	belong	are categorized		

7) Animals are _____ into two groups such as carnivores and herbivores according to what they eat.
(Whole-Part Relationship / Part-Whole Relationship)
8) I-Pads fall _____ the category of mobile technologies.
(Whole-Part Relationship / Part-Whole Relationship)
9) Grocery stores _____ to the category of retailers.
(Whole-Part Relationship / Part-Whole Relationship)
10) Languages _____ into five main categories in terms of their origins.
(Whole-Part Relationship / Part-Whole Relationship)
11) Silver is a _____metals.
(Whole-Part Relationship / Part-Whole Relationship)
12) Vehicles fall _____ two groups: Two-wheeled vehicles and four-wheeled vehicles.
(Whole-Part Relationship / Part-Whole Relationship)

APPENDIX E

PRETEST- POSTTEST (ESSAY)

PRETEST

Write a classification essay about “Types of TV Programs.” You have 50 minutes. You may use the prompts given below or you can write about you own points:

- Entertainment programs
- TV series
- News programs
- Sports programs
- Documentaries

POSTTEST

Write classification essay about “Types of Movies.” You have 50 minutes. You may use the prompts given below or you can write about you own points:

- Action movies
- Romantic movies
- Horror films
- Science-fiction movies
- Animated movies

APPENDIX F

HARD-COPY LECTURE MATERIALS FOR THE TRADITIONAL CLASS

WRITING *Week 15*

Classification Essay 1

What is Classification?

To classify is to gather into categories, segments, methods, types, or kinds according to a single basic criterion. This criterion is called the principle of division. Classification is a common activity that is especially helpful in organizing large groups of ideas into smaller, recognizable divisions that can be given distinct names or titles and then described in detail.

Exercise 1: In pairs, study the following groups of words classified according to the underlined principles. Cross out the category that does not belong. The first one is done for you.

1. Automobiles: two-door, ~~economy,~~ four-door, station wagon.
2. Transportation: on land, by water, by air, ***by train***.
3. Teachers: ***well-prepared***, easy graders, hard graders.
4. Students: ***hard-working***, motivated, not motivated.

Many different principles of classification may be available for a topic. To illustrate, consider the topic of *students*. Students could be classified according to

1. How many credits they have completed: freshmen, sophomores, juniors, seniors.
2. Level of intelligence: brilliant, intelligent, average, below average.
3. Their attitude towards school: a place to improve one's general knowledge, a place to socialize, a place to learn a trade.

Exercise 2: In pairs, study the following groups of words. In each blank, write the principle of classification. The first one is done for you.

1. Teachers: those who dress conservatively, those who dress fashionably, those who dress in a variety of styles.

   The teachers in this school can be classified according to ***the way they dress.***

2. Readers: those who read voraciously, those who read regularly, those who read sporadically, and those who read as rarely as possible.

   People who read can be classified according to ***the way they read.***

3. Smokers: Those who smoke because of nervousness, those who smoke to look sophisticated, those who smoke out of boredom.

   Smokers can be classified according to ***their reasons for smoking.***

Classification Essay 2

What is a Classification Essay?

Purpose: This is a type of essay where information about people, objects, concepts, etc is presented in categories.

What are the sections of the Classification Essay?

Introduction: The writer presents the main idea.

The Thesis Statement: The main idea indicates that the essay is going to describe different categories of the topic. It is essential to use only 1 principle of classification. Most categories can be expressed simply in the thesis to indicate essay organization.

The Body Paragraphs: Each category / type stated in the thesis statement is fully explained in one main body paragraph. There is no set rule about which category to present first, second, or last in a classification essay; however, some kind of logical sequence should be followed: from the most to the least important category, from the least to the most important (climactic order), or from the smallest to the largest, and so on.

The Conclusion: The conclusion will:

- ✓ restate the thesis, and
- ✓ provide a general comment on the topic.

CLASSIFICATION LANGUAGE

The following words can help you in a classification essay:

A. Part – Whole Relationship

Coal	**is a kind of** **is a type of**	non-renewable resource.

Exercise	**is a part of**	a healthy life.

Coal	**falls under** **belongs to** **fits into**	the category of non-renewable resource.

B. Whole-Part Relationship

Energy sources	**are /can be divided into** **are/ can be categorized into** **are/ can be classified into** **fall into**	two	**types.** **categories.** **groups.** **classes.**

C. Coherence

To introduce categories in each of the body paragraphs, transitions are used. These are generally additive transitions: **first, second, next, last, one, another, in addition.**

The *first* group includes those students who dress formally.
The *next* group includes those who dress semi-formally.
The *last* category includes those who dress casually.

APPENDIX G

PRE-CLASS QUIZ FOR FLIPPED CLASSES

Exercise 1: In pairs, study the following groups of words classified according to the underlined principles. Cross out the category that does not belong. The first one is done for you.

1. Automobiles: two-door, ~~economy,~~ four-door, station wagon.
2. Transportation: on land, by water, by air, ***by train***.
3. Teachers: ***well-prepared***, easy graders, hard graders.
4. Students: ***hard-working***, motivated, not motivated.

Exercise 2: In pairs, study the following groups of words. In each blank, write the principle of classification. The first one is done for you.

1. Teachers: those who dress conservatively, those who dress fashionably, those who dress in a variety of styles.

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   People who read can be classified according to ***the way they read.***

3. Smokers: Those who smoke because of nervousness, those who smoke to look sophisticated, those who smoke out of boredom.

   Smokers can be classified according to ***their reasons for smoking.***

Choose the correct choices. Sometimes more than one option can be correct.

1- Coke _____ to fizzy drinks.
   a. falls
   b. divides
   c. belongs
   d. fits

2- Wheat _____ grain.
   a. falls
   b. is a type of
   c. can be divided into
   d. is a kind of

3- University education _____ three categories such as undergraduate, master, and PhD.
    a. falls under
    b. is a kind of
    c. belongs to
    d. can be categorized into

4- Colors _____ two types: light colors and dark colors.
    a. fall under
    b. are divided into
    c. are a kind of
    d. belong to

5- Buses are _____ of transportation vehicles.
    a. a kind
    b. categorized
    c. a type
    d. divided

6- Lemons, bananas, and melons _____ under the category of yellow fruit.
    a. fit
    b. fall
    c. belong
    d. classified

7- Metals _____ into five groups in chemistry.
    a. can be classified
    b. are a type
    c. belong
    d. are a type

Which ones can be thesis statement of a classification essay? Put ticks next to the given sentences.

- Cars can be classified into two groups based on the gear type: manual vs. automatic.
- Students can be hardworking or lazy, and they can also be primary, secondary or high school students.
- Reality shows and talk shows are two types of TV shows.
- Listening can be divided into three types.
- Male and female teachers can be classified according to their subject areas such as male math teachers, female English teachers, and male chemistry teachers.

Which can't be a topic sentence of MB paragraphs in a classification essay about "Transportation Vehicle Types"?

a. The first category is cars.
b. Another category is buses.
c. The next category is ships and trains.
d. The final type is taxis.

If the principle of division is "the number of family members" in a classification essay about "Family Types", which can't be a topic sentence in main body paragraphs?

a. The first family type is nuclear family.
b. Another type of family is single income families.
c. The second family type is extended family.

Main body paragraphs of a classification essay are below. Put them in order to make the essay coherent.

Another type of course is online courses. ____
The last type is blended courses. ____
The first type is face-to-face courses. ____

APPENDIX H

HANDOUT FOR THE TRADITIONAL CLASS

CLASSIFICATION LANGUAGE: EXERCISES

Choose the correct choices. Sometimes more than one option can be correct.

1- Coke _____ to fizzy drinks.
   a. falls
   b. divides
   c. belongs
   d. fits

2- Wheat _____ grain.
   a. falls
   b. is a type of
   c. can be divided into
   d. is a kind of

3- University education _____ three categories such as undergraduate, master, and PhD.
   a. falls under
   b. is a kind of
   c. belongs to
   d. can be categorized into

4- Colors _____ two types: light colors and dark colors.
   a. fall under
   b. are divided into
   c. are a kind of
   d. belong to

5- Buses are _____ of transportation vehicles.
   a. a kind
   b. categorized
   c. a type
   d. divided

6- Lemons, bananas, and melons _____ under the category of yellow fruit.
   a. fit
   b. fall
   c. belong
   d. classified

7- Metals _____ into five groups in chemistry.
   a. can be classified
   b. are a type
   c. belong
   d. are a type

Which ones can be thesis statement of a classification essay? Put ticks next to the given sentences.

- Cars can be classified into two groups based on the gear type: manual vs. automatic.
- Students can be hardworking or lazy, and they can also be primary, secondary or high school students.
- Reality shows and talk shows are two types of TV shows in terms of their content.
- Listening can be divided into three types with regard to its function.
- Male and female teachers can be classified according to their subject areas such as male math teachers, female English teachers, and male chemistry teachers.

Which can't be a topic sentence of MB paragraphs in a classification essay about "Transportation Vehicle Types"?

   a. The first category is cars.
   b. Another category is buses.
   c. The next category is ships and trains.
   d. The final type is taxis.

If the principle of division is "the number of family members" in a classification essay about "Family Types", which can't be a topic sentence in main body paragraphs?

   d. The first family type is nuclear family.
   e. Another type of family is single income families.
   f. The second family type is extended family.

Main body paragraphs of a classification essay are below. Put them in order to make the essay coherent.

Another type of course is online courses. ____
The last type is blended courses. ____
The first type is face-to-face courses. ____

APPENDIX I

LESSON PLANS

LESSON PLAN FOR THE CONTROL GROUP

Day 15 - Exam, no classes

Day 16- Cover the parts “Classification Essay 1, 2, 3” in class and complete the “Classification Language Exercises” handout in class. (2 Blocks) (This part will be delivered by the researcher)

The researcher will give the conceptual posttest for the conceptual knowledge.

Day 17- Do the exercises given in the booklet. (Exercise 3, 4, Sample Essay, Principle of Division exercise)

Day 18- For essay topic 1 (Leisure Time Activities), determine the principle of division through brainstorming as a whole class. Then, divide students into 3 groups, and ask each group to brainstorm one category that will be mentioned in the essay. Afterwards, each group will present their ideas and examples to the class so that a mind map can be drawn on the board.

Give student 50 minutes for the first essay. Tell them that they can only use their dictionaries. Do not give any immediate oral feedback to students while they are writing.

Collect the essays and give them to the researcher.

Day 22- Deliver the essays on which feedback of the researcher is written.

Day 23- Give the essay writing posttest.

LESSON PLAN FOR THE EXPERIMENTAL GROUPS

Day 15- Exam, no classes

Day 15- Remind students to study the video.

Day 16- First, give the conceptual posttest.

Then, do the activities in the booklet. (Exercise 3, Sample Classification Essay, exercise related to the principle of division) (1 block)

Day 18- For essay topic 1 (Leisure Time Activities), determine the principle of division through brainstorming as a whole class. Then, divide students into 3 groups, and ask each group to brainstorm one category that will be mentioned in the essay. Afterwards, each group will present their ideas and examples to the class so that a mind map can be drawn on the board.

Let the students write in class, wander around the classroom and give them immediate feedback while they are writing. (50 minutes)

Collect the essays and give them to the researcher.

Day 22- Deliver the essays on which feedback of the researcher is written.

Day 23- Give the essay writing posttest.

APPENDIX J

IN-CLASS ACTIVITIES FOR THE TRADITIONAL CLASS

Exercise 3: Read the text below and answer the questions that follow.

Aristotle's Classification of Governments

When people live together in a society, there are certain people and institutions that have the responsibility for formulating and administering laws and policies. These people and institutions are known as government. One of the earliest known theoretical classifications of governmental systems was made by the ancient Greek philosopher Aristotle. Aristotle considered many different possible forms of government and decided that the most important difference among them all was the placement of the highest decision-making authority. Accordingly, Aristotle decided that there were three basic types of government: rule by one, rule by the few, and rule by the many.

Rule by one is found in systems where one person has the power to make decisions for the whole society. Aristotle called a *monarchy* a system in which one person ruled for the good of the society. In contrast, a system in which one person ruled primarily for his own private benefit was called a *tyranny*.

The second major classification of governments in Aristotelian theory, rule by the few, includes all forms of government in which a minority controls the majority. An *aristocracy* was considered to be a positive form of this type of government, in which a few ruled in the interest of the whole society. On the other hand, an *oligarchy* was a system in which the minority used its political power for its own interests.

The final type of government in Aristotelian theory was government by the many. A governmental system in which a majority controlled political power so that all people benefited was called a *polity*. On the other side of the coin, systems in which the majority abused its power and used it only for its own good were called *democracies*.

Of course, this is only one way of looking at government, and many people do not think it is an adequate theory nowadays. In particular, we should note that different people have different opinions about whether a government rules for the benefit of all the people or for its own benefit. Nonetheless, it is interesting to study this early theory and see how it describes – or fails to describe – our world today.

Adapted from Z.R. Kayalar and S. N. Unlusoy. (1989). *Creative Perspectives for Advanced Reading and Writing.* METU Press: Ankara. p.137

1. What is the principle of classification Aristotle uses when grouping governments?

   The placement of the highest decision-making system.

2. How many categories of governments are listed? What are their names?

   Three. Rule by one, rule by the few and government by the many.

3. a. What is the distinguishing feature of "rule by one" system of government?

   One person had the power to make decisions for the whole society.

   b. What difference exists between the two types of such governments?

   In monarchy, one person ruled for the good of the society. In contrast, in tyranny, one person ruled primarily for his own private benefit.

4. a. What is the distinguishing feature of the "rule by the few" system of government?

   A minority controlled the majority.

   b. What difference exists between the two types of such governments?

   In aristocracy, a few ruled in the interest of the whole society. On the other hand, in oligarchy, the minority used its political power for its own interests.

5. a. What is the distinguishing feature of "rule by the many" system of government?

   A majority controlled political power.

   b. What difference exists between the two types of such governments?

   In polity, a majority controlled political power so that all people benefited. On the other side of the coin, in democracies, the majority abused its power and used it only for its own good.

6. What is the writer's conclusion about Aristotle's classification?

   He finds it interesting but also notes that there are other forms of classification as well.

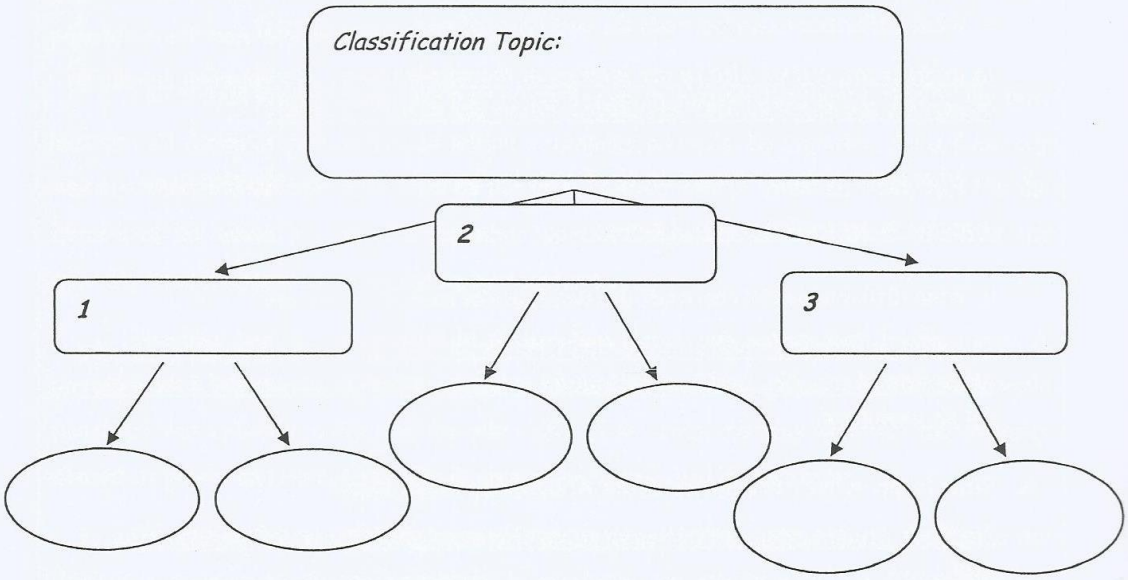
Exercise 4

When writing a classification essay, you need to group items or ideas into specific categories. Brainstorm with a partner in order to categorize two of the following items. (You may choose an item not included on this page, as well.) First, decide on a principle of categorization, then organize your ideas by "clustering" related ideas in groups.

- Types of sports
- Types of families
- Types of cars
- Types of leisure time activities

The map below will help you organize your ideas.

Organizing a Classification Essay



Sample Classification Essay

Task: Underline the main ideas in the following sample essay. Make an outline of it in the space provided on the previous page.

The **Thesis Statement is underlined and bolded. **Topic Sentences** and the **Concluding Sentence** are bolded. Supporting ideas are underlined.

GRAPHIC DESIGN PROGRAMS

Graphic design has become an essential tool in desktop publishing. Only a short time ago, people relied on professionals to perform tasks that the computer has now made possible for anyone who takes the time to learn them. **Graphic design programs are classified according to their function, that is, according to the purpose they are used for**.

In the first category are the programs used for developing web pages. Dreamweaver and Flash MX are two of the most well-known programs used for this purpose. Dreamweaver is in an HTML format, which is one of the languages used to create simple web pages. This type of web page program allows for a navigation bar, some pictures in the background, and simple animations. With Flash MX, you can develop very dynamic web pages. For example, you can have transitional pages, which are links that guide you from one slide (or portion of the slide) to another. You can also have animated introductions and create diverse effects with the buttons at the bottom of the pages.

If you are looking for programs that can design flyers, posters, and cards, Photoshop and Illustrator are very useful programs. Photoshop lets you create whatever you want, from websites and posters to catalogs and business cards. With this program, you can repair or enhance any part of an old photograph by making the image brighter or adding shadow. Illustrator is very similar to Photoshop, but Illustrator is especially good for making flyers, business cards, CD covers, and magazine layouts. It is very useful for designing logos and even creating new styles of fonts.

In the last group are animation programs such as Swift 3D and Swish that can be used to produce a 2- or 3-dimensional style, depending on the effect desired. Two-dimensional animations do not have depth, but are flat planes like pieces of paper. Three-dimensional animations have depth, as in real life when you see a box from a distance. These programs allow you to create something as simple as a 3-dimensional sphere to something as complex as a house or a car. Swish also provides more options for font design than Flash MX.

All these programs can be used together to create a dynamic web page. Three dimensional animations add depth, while Dreamweaver can be used as the base program to make the "skeleton" of the web page. The others can flesh it out. Flash makes the pages dynamic. Photoshop helps with the creation of photos: Illustrator and Swift make it possible to create company logos in either 2- or 3-dimensions, and Swish helps with the effects on the font design. In the world of graphics, you have to be up-to-date with the latest programs to improve your skills as well as give your clients the best.

Exercise: Below are two topics for a classification essay. First, determine the principle of classification. Then, write a *thesis statement* and three (body par) *topic sentences* for each using the expressions above.

1. Types of games : individual games (e.g. computer games)
   group games (e.g. playing "house" or "doctors")
   team games (e.g. various ball games)

Principle of classification: how many people play them

Thesis: _____

Topic stc 1: _____

Topic stc 2: _____

Topic stc 3: _____

Answers will vary

2. Types of exams : multiple-choice
   short-answer
   essay

Principle of classification: types of questions

Thesis: _____

Topic stc 1: _____

Topic stc 2: _____

Topic stc 3: _____

Answers will vary

APPENDIX K

IN-CLASS ACTIVITIES FOR FLIPPED CLASSES

Exercise 4

When writing a classification essay, you need to group items or ideas into specific categories. Brainstorm with a partner in order to categorize two of the following items. (You may choose an item not included on this page, as well.) First, decide on a principle of categorization, then organize your ideas by "clustering" related ideas in groups.

- Types of sports
- Types of families
- Types of cars
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The map below will help you organize your ideas.

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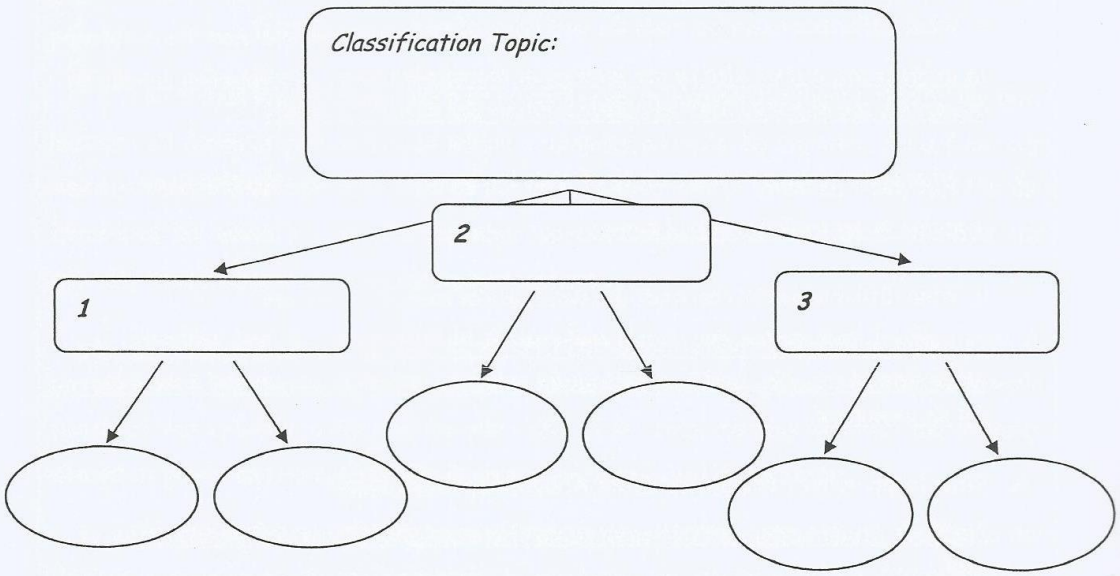

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The final type of government in Aristotelian theory was government by the many. A governmental system in which a majority controlled political power so that all people benefited was called a *polity*. On the other side of the coin, systems in which the majority abused its power and used it only for its own good were called *democracies*.

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6. What is the writer's conclusion about Aristotle's classification?

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In the first category are the programs used for developing web pages. Dreamweaver and Flash MX are two of the most well-known programs used for this purpose. Dreamweaver is in an HTML format, which is one of the languages used to create simple web pages. This type of web page program allows for a navigation bar, some pictures in the background, and simple animations. With Flash MX, you can develop very dynamic web pages. For example, you can have transitional pages, which are links that guide you from one slide (or portion of the slide) to another. You can also have animated introductions and create diverse effects with the buttons at the bottom of the pages.

If you are looking for programs that can design flyers, posters, and cards, Photoshop and Illustrator are very useful programs. Photoshop lets you create whatever you want, from websites and posters to catalogs and business cards. With this program, you can repair or enhance any part of an old photograph by making the image brighter or adding shadow. Illustrator is very similar to Photoshop, but Illustrator is especially good for making flyers, business cards, CD covers, and magazine layouts. It is very useful for designing logos and even creating new styles of fonts.

In the last group are animation programs such as Swift 3D and Swish that can be used to produce a 2- or 3-dimensional style, depending on the effect desired. Two-dimensional animations do not have depth, but are flat planes like pieces of paper. Three-dimensional animations have depth, as in real life when you see a box from a distance. These programs allow you to create something as simple as a 3-dimensional sphere to something as complex as a house or a car. Swish also provides more options for font design than Flash MX.

All these programs can be used together to create a dynamic web page. Three dimensional animations add depth, while Dreamweaver can be used as the base program to make the "skeleton" of the web page. The others can flesh it out. Flash makes the pages dynamic. Photoshop helps with the creation of photos: Illustrator and Swift make it possible to create company logos in either 2- or 3-dimensions, and Swish helps with the effects on the font design. In the world of graphics, you have to be up-to-date with the latest programs to improve your skills as well as give your clients the best.

Exercise: Below are two topics for a classification essay. First, determine the principle of classification. Then, write a *thesis statement* and three (body par) *topic sentences* for each using the expressions above.

1. Types of games : individual games (e.g. computer games)
   group games (e.g. playing "house" or "doctors")
   team games (e.g. various ball games)

Principle of classification: how many people play them

Thesis: _____

Topic stc 1: _____

Topic stc 2: _____

Topic stc 3: _____

Answers will vary

2. Types of exams : multiple-choice
   short-answer
   essay

Principle of classification: types of questions

Thesis: _____

Topic stc 1: _____

Topic stc 2: _____

Topic stc 3: _____

Answers will vary

APPENDIX L

RUBRIC FOR ESSAY MARKING

VERY GOOD (20): The language might not be without errors, yet the target language and vocabulary is used correctly almost without exception. The writer may exhibit a high degree of adequacy in using structures that are specific to the classification (are/can be classified/categorized/divided into types/categories/groups/classes, fall into, belong to, fit into, fall under, and a kind/type/part of). All of these structures are used correctly. The writing has a clear organisational structure, presenting each category in separate paragraphs. The paragraphs have inner coherence with clear main ideas, substantial support, and elaboration. In the thesis statement, the writer expresses the categories or types that are to be explained in main body paragraphs and principle of division.

GOOD (16): The language is marked with a high degree of adequacy in using the target language and low overall frequency of errors. When the writer attempts more sophisticated discussion, there may be some errors in more complex structures, but there is no interference with meaning. The target vocabulary is used mostly correctly. The writer uses some sentence structures and vocabulary items that are specific to the classification essay (are/can be classified/categorized/divided into types/categories/groups/classes, fall into, belong to, fit into, fall under, and a kind/type/part of). Most of these structures are used correctly. The task is well-developed; ideas are supported with more than adequate support and elaboration and are linked logically in a coherent and meaningful way. The writing has a clear organisational structure, presenting each category in separate paragraphs. In the thesis statement, the writer expresses the categories or types that are to be explained in main body paragraphs and principle of division.

SATISFACTORY (12): The language is mostly simple with few attempts at complex structures (relative and adverbial clauses). There may be some errors in the target structures; however, most are used correctly. Errors in complex structures, less frequent gerund-infinitive forms, and articles which do not impede meaning should be treated with tolerance. Target vocabulary appears adequate and is used and spelled mostly correctly. Although most of the sentences may be simple, there should be some variety of grammatical structures and vocabulary items that are specific to the classification essay (are/can be classified/categorized/divided into types/categories/groups/classes, fall into, belong to, fit into, fall under, and a kind/type/part of). The task is developed adequately with some supporting ideas and elaboration of points. The writing has an adequate organisational structure with connected ideas by presenting each category in separate paragraphs. The reader does not experience difficulties in reading the text. In the thesis statement, the writer expresses the categories or types that are to be explained in main body paragraphs, but the principle of division may be missing.

DOUBTFUL (10): The language is simple and marked with errors in target structures although most errors do not impede meaning. Target vocabulary is mostly used correctly with some errors in collocation and word forms. There is limited usage of some grammatical structures and vocabulary items that are specific to the classification essay (are/can be classified/categorized/divided into types/categories/groups/classes, fall into, belong to, fit into, fall under, and a kind/type/part of). The task is developed adequately and the text is generally coherent; however the writer may not always be able to sustain relevant explanation and exemplification. The writer deviates from the main goal of the classification essay which is “giving information related to categories or types”. The

reader may experience difficulties in reading the text at a few points in terms of language inadequacy and incoherent organisation of ideas. In the thesis statement, the writer expresses the categories or types that are to be explained in main body paragraphs, but the principle of division may be missing.

UNSATISFACTORY (8): The language is below satisfactory level with re-occurring or frequent errors in target structures and frequent omission and/or incorrect usage of prepositions; frequent word choice/form and collocation errors. There might be a few sentence fragments and errors in some linking devices. The writer is generally able to handle basic SVO structure. There is very little usage of some grammatical structures and vocabulary items that are specific to the classification essay (are/can be classified/categorized/divided into types/categories/groups/classes, fall into, belong to, fit into, fall under, and a kind/type/part of). Errors may seriously interfere with meaning at points. The writing may have some surface organisation. However, the ideas may not be developed adequately and supported with enough related examples. Each category is not presented in separate paragraphs. The text may read like a list or the writer cannot establish coherence mostly due to language inability. In the thesis statement, the writer expresses the categories or types that are to be explained in main body paragraphs, but the principle of division may be missing.

POOR (4): The language is marked with serious and very frequent errors in target structures: incorrect usage of discourse markers; frequent omission and/or incorrect usage of prepositions; frequent word choice/form and collocation errors. There is NO usage of some grammatical structures and vocabulary items that are specific to the classification essay (are/can be classified/categorized/divided into

types/categories/groups/classes, fall into, belong to, fit into, fall under, and a kind/type/part of). Meaning is seriously disrupted. Many sentences are incomprehensible. The text may read like a list of sentences rather than a paragraph as coherence is seriously disrupted due to the inability of the writer to express him/herself. Each category is not presented in separate paragraphs. A text of only a few short sentences or which is off-topic can only receive this score. . In the thesis statement, the writer does not the categories or types that are to be explained in main body paragraphs, and there is no principle of division expressed in the thesis statement.

APPENDIX M

DETAILED ANALYSIS TABLES

Table 15. Shapiro-Wilk Test for the Posttests

		Shapiro-Wilk		
	Intervention Types	Statistic	df	Sig.
Conceptual Posttest	AN+T	.887	15	.060
	AT+N	.890	18	.039
	AN+T_W	.906	20	.055
	AN+T _P	. 909	17	.098
	AN+T _LC	.911	21	.058
	AT+N _LC	.918	18	.121
	Traditional Lecture	.965	18	.707
Essay Writing Posttest	AN+T	.935	15	.324
	AT+N	.699	18	.000
	AN+T _W	.850	20	.005
	AN+T _P	.826	17	.005
	AN+T _LC	.826	21	.002
	AT+N _LC	.865	18	.015
	Traditional Lecture	.873	18	.020

Table 16. Skewness and Kurtosis of Learner Autonomy and Critical Thinking Disposition (Raw Scores)

	N	Skewness	Kurtosis	Mean	SD
Learner Autonomy	127	1.66	0.06	2.9	.30
Critical Thinking Disposition	127	-0.98	0.29	115.7	11.92

Table 17. Descriptive Statistics of the Pretest Results

Intervention Types	Pretest		
	n	Mean	SD
AN+T	15	5.0	1.79
AT+N	18	4.8	1.67
AN+T_W	20	5.3	1.30
AN+T_P	17	4.6	1.36
AN+T_LC	21	4.9	1.49
AT+N_LC	18	4.1	0.47
Traditional Lecture	18	5.1	2.05

Table 18. Shapiro Wilk's Test for the Pretest

		Shapiro-Wilk		
	Intervention Types	Statistic	df	Sig.
Pretest	AN+T	.643	15	0.000
	AT+N	.589	18	0.000
	AN+T_W	.734	20	0.000
	AN+T _P	.547	17	0.000
	AN+T _LC	.641	21	0.000
	AT+N_LC	.253	18	0.000
	Traditional Lecture	.599	18	0.000

Table 19. Levene's Test for the Pretest

Levene's Test of Equality of Error Variances

Pretest

F	df1	df2	Sig.
4.174	6	120	.001

Table 20. ANOVA for the Pretest

Source	Type III Sum of Squares	*df*	Mean Square	*F*	*p*
Between Groups	17.577	6	2.929	1.275	.274
Within Groups	275.651	120	2.297		
Total	293.228	126			

Table 21. Results of Multicollinearity of the Posttests

	Collinearity Statistics	
Dependent Variables	Tolerance	VIF
Conceptual Posttest	.952	1.05
Essay Writing Posttest	.952	1.05

APPENDIX N

TRANSCRIPTION OF NARRATION

PART 1: WHAT IS CLASSIFICATION?

Classification is a common activity that is especially helpful in organizing large groups of ideas into smaller, recognizable divisions. To classify is to gather objects, people, and concepts into categories, segments, methods, types, or kinds according to a single basic criterion.

Principle of Division

This basic single criterion is called principle of division, but what is principle of division? It is the criterion that we can use while putting people, objects, and concepts into types, kinds, categories, segments, and methods. In short, principle of division is the basic criterion that is used in a classification essay to categorize people, objects, and concepts. And for single topic, for one specific topic, many different principles of classification or many different principles of division can be used.

Let's consider the topic of students. Students can be classified according to how many credits they have completed. They can be categorized as freshmen, sophomores, juniors, and seniors. The same topic, students, can also be classified according to level of intelligence. For example, based on their level of intelligence, we can categorize students as below average, average, intelligent, and brilliant. Another classification about students can be based on their attitude towards school. For example, some students think that school is a place to socialize. Some other students think that school is a place to improve one's general knowledge, and maybe others thick that school is a place to learn a trade.

PART 2: ORGANIZATION OF CLASSIFICATION ESSAY

In this part, we will talk about organization of classification essay. First, let's define what a classification essay is. A classification essay is a type of essay where information about people, objects, and concepts is presented in categories. And, similar to a typical essay, this type of essay also includes three parts such as introduction, main body paragraphs, and conclusion.

As you can guess, the first paragraph is introduction. In introduction, you should introduce the topic and present the main idea. Towards the end of the introduction paragraph, you should write a thesis statement. As you may remember the thesis statement is the main idea that shows what the essay is going to be about. For a classification essay, the thesis statement shows the groups and categories of the given topic. There is an important rule about the thesis statement of the classification essay. In the thesis statement of a classification essay, you should include the principle of division. What is more important is that you can use only one principle of division in each classification essay. That means you may not use more than one principle of division in one classification essay. This is a very important rule for this type of essay.

After writing the introduction paragraph, you should write main body paragraphs. In main body paragraphs, you need to explain each type or category that you have stated in the thesis statement of your essay in one main body paragraph. That means you can describe or explain only one type or category in each main body paragraph. There is no fixed rule about which category to present first, second or last, in a classification essay. But, you may follow a logical sequence such as from the most to the least important category, or from the least to the most important category, or from the smallest to the largest category.

The last paragraph of your classification essay is conclusion. In conclusion, you may restate your thesis statement in different words, provide a general comment on the topic, or summarize the categories or type that you have mentioned throughout your essay. The important rule about the conclusion paragraph is that you should not express a new idea in this last paragraph of the essay.

PART 3: USEFUL LANGUAGE STRUCTURES

While writing a classification essay, you may need to use some structures. We call these structures classification language. For example, in order to express a part-whole relationship, you may need some specific structures. Before talking about the examples and structures, let me explain what a part-whole relationship is.

In a part-whole relationship, first, you need to express the item and then the category which that item belongs to. Let me give you some examples. You can say coal is a kind of non-renewable resources, or you can say coal is a type of non-renewable resources. In these sentences, coal is the single item that belongs to a category, and 'non-renewable resources' is the name of that general category. Another structure that you can use in this format is, for example, coal is a part of non-renewable resources. On the other hand, we have some specific verbs that we can use while categorizing or classifying the items. For example, you can say coal falls under the category of non-renewable resources, or you can say coal belongs to the category of non-renewable resources. And, another example: Coal fits into the category of non-renewable resources. As you see, some specific verbs can be used in order to express the part-whole relationship. Here, the prepositions after the verbs are important: fall under, belong to, fit into.

The second part of classification language structures is related to the whole-part relationship. In the whole-part relationship, you start your sentence with a

general category name, and then you mention specific categories, types, or groups. That means you start with the whole and then, you express the parts such as types, categories, or groups. Let me give you an example: Energy sources are/can be divided into two types. As you see, the 'energy sources' is the general category name and then, we use a passive structures like 'are or can be divided into' and then express the specific types. Another example: Energy sources are/can be categorized into two categories. Here the rationale is the same. You start with the general category name, then you use a passive structure, and then you express the specific categories. The next example: Energy sources are/can be classified into two different groups. Again, you start with the general category name, then a passive structure, and finally specific group names. These are the passive structures that we use while expressing the whole-part relationship. We have also one active structure that we can use in this kind of relationship. Let me give you an example: Energy sources fall into two classes. As you see, fall into is an active verb, and that is the only active verb that we can use while expressing a part-whole relationship in a classification essay.

The last part of classification language structures is related to coherence. An essay should be coherent. That means the ideas in an essay should be expressed in a logical and smooth order so that the reader can understand your essay easily. Coherence can be provided by using some transition words. When it comes to the classification essay, you may need to express each category in each main body paragraph. To provide coherence in a classification essay, you can use transition words, and these transition words are generally additive ones such as first, second, next, last, one, another, in addition. Let me give you some examples. For example, you can start your main body one with this sentence: The first group includes those students who dress formally. The second main body can start with this sentence: The

next group includes those who dress semi-formally. And, the last main body can start with this sentence: The last category includes those who dress casually.

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