YEDITEPE UNIVERSITY
GRADUATE SCHOOL OF EDUCATIONAL SCIENCES

THE IMPACTS OF FLIPPED CLASSROOM ON WRITING COMPLEXITY ACCURACY AND FLUENCY OF TURKISH EFL LEARNERS

Deniz Melike Ertürk

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ABSTRACT

THE IMPACTS OF FLIPPED CLASSROOM ON WRITING COMPLEXITY ACCURACY AND FLUENCY OF TURKISH EFL LEARNERS

This study investigates the possible impacts of the flipped classroom model on the writing achievement, writing complexity, accuracy, and fluency (CAF) of English as a Foreign Language (EFL) learners enrolled in a language preparatory school at a state university in Turkey. The research also explores students' perceptions toward the flipped writing classroom. Recognizing the inherent challenges of academic writing for EFL learners—such as limited language exposure, insufficient practice opportunities, and the cognitive load of integrating grammar, vocabulary, and ideas—the flipped classroom model offers a promising pedagogical approach by providing more interactive and learner-centered activities. The study employed a pre-post design quasi-experimental methodology with two intact B2 level classes, each comprising 20 students. The experimental group received flipped instruction for essay writing during six weeks. Data collection involved pre and post-tests (opinion essays), surveys, and focus group interviews. Analytical tools included SPSS for statistical analysis, NEOSCA for syntactic complexity analysis, *Grammarly* software for grammar checking, and the researcher's qualitative analysis. Results indicated that the flipped classroom model positively affected the overall writing performance of the experimental group. However, no significant differences were observed between the experimental and control groups in terms of writing complexity, accuracy, and fluency by the end of the intervention. Notably, students' attitudes toward the flipped writing classroom were predominantly positive. The findings suggest that while the flipped classroom model enhances writing performance, it may not significantly influence writing CAF within the studied duration. Based on these results, the study provides implications for future practice and research, advocating for further exploration into long-term effects and the integration of additional supportive measures to enhance writing CAF in EFL contexts.

Keywords: Flipped classroom, writing CAF

ÖZET

TERS YÜZ EDİLMİŞ SINIF MODELİNİN YABANCI DİL OLARAK İNGİLİZCE ÖĞRENEN TÜRK ÖĞRENCİLERİNİN YAZMA PERFORMANSI, YAZMA KARMAŞIKLIĞI, DOĞRULUĞU VE AKICILIĞI ÜZERİNDEKİ ETKİSİ

Bu çalışma, ters yüz sınıf modelinin Türkiye'deki bir devlet üniversitesinde yabancı dil hazırlık okuluna kayıtlı yabancı dil olarak İngilizce öğrenen öğrencilerin yazma performansı, yazma karmaşıklığı, doğruluğu ve akıcılığı (CAF) üzerindeki etkisini araştırmaktadır. Ayrıca, öğrencilerin ters yüz edilmiş yazma sınıfına yönelik algıları da incelenmiştir. Yabancı dil olarak İngilizce öğrenen öğrenciler için akademik yazmanın doğasında bulunan sınırlı dil maruziyeti, yetersiz uygulama fırsatları ile dil bilgisi, kelime bilgisi ve fikirleri entegre etmenin bilişsel yükü gibi zorlukları ele alan ters yüz sınıf yazma modeli, daha etkileşimli ve öğrenci odaklı aktiviteler sunarak umut verici bir pedagojik yaklaşım sunmaktadır. Çalışmada, her biri 20 öğrenciden oluşan iki bütünleşik B2 seviyesindeki sınıfla pre-post tasarım yarı deneysel bir metodoloji kullanılmıştır. Deney grubu, altı hafta boyunca yazma için ters yüz öğretimi almıştır. Veri toplama, pre ve post-testler (makaleler), anketler ve odak grup görüşmeleri ile gerçekleştirilmiştir. Analitik araçlar olarak SPSS istatistiksel analiz için; NEOSCA sözdizimsel karmaşıklık analizi için; *Grammarly* dil bilgisi kontrolü için ve araştırmacının nitel değerlendirmesi kullanılmıştır. Sonuçlar, ters yüz sınıf modelinin deney grubunun genel yazma performansı üzerinde olumlu bir etki yarattığını göstermiştir. Ancak, müdahale sonunda yazma karmaşıklığı, doğruluğu ve akıcılığı açısından deney ve kontrol grupları arasında anlamlı bir fark gözlenmemiştir. Ayrıca öğrencilerin ters yüz yazma sınıfına yönelik tutumları ağırlıklı olarak olumlu olduğu ortaya çıkmıştır. Bulgular, ters yüz sınıf modelinin yazma performansını artırırken, çalışılan süre zarfında yazma karmaşıklığı, doğruluğu ve akıcılığını önemli ölçüde etkilemeyebileceğini önermektedir. Bu sonuçlara dayanarak, çalışma, gelecekteki uygulama ve araştırmalar için uzun vadeli etkilerin ve yabancı dil olarak İngilizce öğretimi bağlamlarında yazma karmaşıklığı, doğruluğu ve akıcılığını artırmak için ek destekleyici önlemlerin entegrasyonunun daha fazla araştırılmasını önermektedir.

Anahtar Kelimeler: Ters yüz sınıf, yazma karmaşıklığı, doğruluğu, akıcılığı

DEDICATION

To all the educators

who inspire, guide, and build a better tomorrow

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

CAF	Complexity accuracy fluency
CEFR	Common European framework of reference for languages
EFL	English as a foreign language
JiTT	Just in time teaching
L2	Second language
L2SCA	L2 syntactic complexity analyzer
PI	Peer instruction
SLA	Second language acquisition

1. INTRODUCTION

1.1. Background of the Study

Writing proficiency is a crucial skill for university students globally, including those in tertiary-level institutions in Turkey, where the medium of instruction is English for a lot of undergraduate and graduate programs. English serves as the medium of instruction for at least twenty percent of undergraduate and graduate programs at universities (Arik & Arik, 2014), and this percentage is continuously growing. The language level often targeted in preparatory language programs is B2 based on the Common European Framework of Reference for Languages (CEFR) standards, a level that is crucial for success in professional careers. B2 is also the most required CEFR level as an entrance requirement for academic institutions across Europe for overall language proficiency (Eckes & Althaus, 2020). Ideally, the goal should be to achieve a C1 level in language proficiency to excel in academic and professional endeavours ("Qualifications for Higher Education", 2020). To help students reach these levels, preparatory language programs are designed with curricula that focus on improving language proficiency, a task particularly challenging not only for teachers but also for students with a low level of proficiency.

Writing is one of the most difficult skills for English as a Foreign Language (EFL) learners to acquire (Richards & Renandya, 2002; Aygün & Aydin, 2016). Its difficulty stems from significant differences between native and target languages in terms of grammar, vocabulary, sentence structure, and discourse patterns (Harmer, 2001; Kroll, 1990) Furthermore, students often lack sufficient opportunities for writing practice, both in real-life contexts and within educational settings, compounded by limited feedback on their writing (Chen et al., 2016). Cultural differences in expressing and organizing ideas add another layer of complexity (Nasiri, 2012). Other challenges include students' negative

perceptions of writing, writing anxiety, and low motivation (Kormos, 2012; Akbiyik 2015). According to Sharpes (1993), the multifaceted nature and complexity of writing in a second language contribute significantly to students' low motivation, leading to disengagement from writing tasks and a negative attitude towards writing.

Complexity, accuracy, and fluency (CAF) are critical indicators of writing proficiency, indicating a writer's capability to employ diverse and sophisticated language structures (complexity), correctly implement language rules (accuracy), and produce written text smoothly and efficiently (fluency). These elements are crucial for effective communication and they are frequently used to evaluate overall language competence (Housen & Kuiken, 2009). Nevertheless, many students in EFL courses generate texts of low quality in terms of CAF. This lower quality of writing among EFL learners can partly be attributed to their limited practice in both their first language and English prior to higher education. A recent study by Ozmat & Senemoglu (2021) on the challenges EFL students face in learning English revealed that a majority of Grade 11 participants (930 out of 1373) reported difficulties in writing due to a lack of practice. Similarly, the participants in the experimental group of this study indicated that they had limited writing practice before attending university. When informally asked about their most recent writing experiences in any language, many reported having no experience writing in English and only completing assignments such as essays or summaries in Turkish during previous grades. Their primary focus during this period was on preparing for the university entrance exam, which does not include a writing component. This lack of experience complicates the writing process, causing many students, despite having relatively high levels of English vocabulary and grammar knowledge, to struggle with generating and organizing ideas before and during writing.

Another challenge is the curriculum's focus on grammar, reading, listening, and speaking skills, often at the expense of writing instruction. This prioritization results in limited time dedicated to writing classes and assignments, both inside and outside the classroom, thereby reducing interaction among students as well as between students and teachers. Consequently, this leads to textual products that are low in both writing quality and writing CAF, which is closely associated with overall language proficiency (Barrot & Agdeppa, 2021).

A promising approach to improving learners' performance in second language (L2) writing is the flipped classroom model. This instructional method shifts traditional teaching by presenting instructional material outside the classroom and involving students in interactive exercises during class time. By enabling students to view video lectures and utilize additional resources according to their individual pace, the flipped classroom facilitates repeated exposure to content, promoting deeper comprehension and retention (Bergmann & Sams, 2012). The flipped classroom model has been widely adopted across various disciplines, including Mathematics, Social Sciences, and Humanities, and it is used in schools and universities globally (Hao, 2016). This widespread adoption is largely due to the incorporation of technology into education, altering conventional teaching methods and providing innovative ways to enhance learning experiences and outcomes. This shift is particularly significant in language teaching, where technological tools can be utilized to improve the acquisition of complex skills like writing.

In a flipped classroom setting, class time is utilized for active learning activities, discussions, and application of concepts (Tucker, 2012). This model not only grants students the flexibility to review concepts at their own speed but also empowers educators to dedicate class time to interactive writing activities, collaborative exercises, and individualized

feedback sessions. By shifting the focus from passive learning to active engagement, the flipped classroom creates a supportive environment where students can work through writing challenges, receive individual feedback, and participate in peer review processes, thus enhancing their overall writing proficiency (Lage et al., 2000). Furthermore, it encourages student autonomy and responsibility for learning (Lai & Hwang, 2016), helps overcome writing anxiety, and improves motivation (Strayer, 2007; Huang & Hong, 2016). By systematically addressing these challenges through student-centered instruction and integrating strategies that target complexity, accuracy, and fluency within the flipped classroom framework, this approach holds great potential for significantly enhancing students' writing skills and promoting their academic success in English language learning contexts.

1.2. Aim and Significance of the Study

There have been a number of studies comparing these two types of classrooms to assess their efficacy in various educational contexts. Hung (2015) compared the flipped classroom with traditional methods in a university EFL course and observed significant improvements in students' engagement and learning outcomes in the flipped classroom. Webb and Doman (2016) examined the effects of a flipped classroom on Chinese university students learning English, reporting positive results in student performance and satisfaction. Hao (2016) investigated the flipped classroom approach in a Taiwanese university's EFL setting, finding enhanced student motivation and better academic performance compared to non-flipped classrooms. Other studies have explored the impact of flipped classrooms on the development of writing skills in different contexts (Leis et al., 2015; Soltanpour & Valizadeh, 2018; Ekmekçi, 2017; Altas & Mede, 2020).

Regarding CAF in writing, several studies have explored the impacts of factors such as task complexity (Adams et al., 2015; Frear & Bitchener, 2015), topic familiarity (Yang & Kim, 2018; Kessler et. al, 2021), and planning time (Yuan & Ellis, 2003) on the CAF. However, few studies have utilized CAF to assess the impact of instructional methods or learning environments, and the existing research primarily focuses on CAF in oral performance. Only one study by Fathi and Rahimi (2020) has examined all the dimensions of writing CAF as an index of improvement in writing within a flipped classroom environment. No research has yet investigated how writing CAF is influenced by flipped classrooms in the Turkish EFL context. This indicates a gap in the literature regarding the effects of flipped classrooms on the CAF constructs of writing among students in an EFL setting. Therefore, this study aims to fill this gap through a quasi-experimental research design to analyze the impact. Additionally, it seeks to explore Turkish EFL students' perceptions of the flipped writing classroom to gain a deeper understanding of how this instructional approach may influence writing development.

By utilizing the fundamentals of the flipped classroom for teaching writing, specifically emphasizing the product-process approach, the researcher intends to explore the following:

R.Q. 1: Does flipped writing classroom affect EFL students' writing achievement? If so, how?

R.Q. 2: Does flipped writing classroom affect EFL students' writing complexity, accuracy, and fluency compared to a non-flipped writing class? If so, how?

R.Q. 3: What are the perceptions of EFL students toward flipped writing classrooms?

The findings of the study to be obtained regarding the questions can potentially contribute to the provision of a more effective curriculum, as well as more engaging language and writing instructional activities, both within the institution where the study was conducted and in similar contexts. This enhancement aims to improve writing proficiency, particularly in terms of complexity, fluency, and accuracy. Additionally, the qualitative data from the study may offer valuable insights into addressing challenges encountered in teaching and learning writing by presenting potential solutions.

1.3. Limitations of the Study

Several limitations should be considered when interpreting the findings of this study. Firstly, the sample size for both the experimental and control groups was relatively small, with only 20 participants in each group.

Additionally, while the study measured writing complexity, accuracy, and fluency (CAF), it only tested a limited number of CAF measures. This narrow focus may not fully capture the complexity of writing proficiency and could overlook important aspects of language production.

Furthermore, the duration was relatively short, spanning six weeks. This brief timeframe may not have allowed sufficient time to observe significant changes in writing skills or to assess the long-term retention of any improvements.

Another limitation is the lack of delayed post-tests or time interval series of tests to track potential improvements over time. Without these follow-up assessments, it is challenging to see the lasting impacts of the intervention.

Finally, the study utilized a convenience sample rather than random sampling. This non-random selection method may introduce bias and limit the representativeness of the sample, thereby affecting the external validity of the findings.

Overall, while the study offers valuable insights into the impacts of the intervention on writing skills, these limitations should be acknowledged when considering implications for future research.

1.4. Definition of Terms

Complexity: "Complexity in language refers to the intricacy or sophistication of linguistic elements used in communication, including grammatical structures, vocabulary diversity, and syntactic variety" (Ellis, 2008, p. 203).

Accuracy: "Accuracy in language refers to the correctness or precision of language use, particularly in terms of grammar, vocabulary, pronunciation, and spelling" (Brown, 2000, p. 253).

Fluency: "Fluency in language refers to the smoothness, fluidity, and pace of speech or writing, characterized by the ability to express ideas effortlessly and without hesitation" (Nation & Newton, 2009, p. 1).

2. LITERATURE REVIEW

This study investigates the impacts of flipped classroom model on the writing achievement, writing complexity, accuracy, and fluency of the EFL students as well as their perceptions of flipped writing classes. This chapter starts by presenting an overview of writing skill, instructional approaches to writing, and CAF measures for writing proficiency. The second section introduces a brief history of flipped classroom, its theoretical framework, and lastly relevant studies on the use of flipped instruction in EFL writing.

2.1. Writing Skill

Writing serves as a means to convey thoughts, experiences, and emotions to readers using a traditional graphic system (Harmer, 2004).

According to Britton et al. (1975), writing is a multifaceted cognitive process that encompasses a sequence of decisions and selections from an individual's range of syntactic structures and vocabulary. A writer begins with a concept or expression in mind and subsequently selects the words, phrases, language patterns, and structures available to them that most effectively convey their intended meaning (Flower & Hayes, 1981).

Writing is learned only after the acquisition of the other three language skills, and it is "not natural in the way speech is" (Solway, 1997, p.105). It requires mastery of other basic language skills in addition to the ability to use grammar, spelling, and punctuation correctly. It also requires knowledge of different writing formats and contents, including emails, letters, articles, and paragraphs. The ability to choose the right writing genre for the task at hand is also essential.

Flower and Hayes (1980) characterize writing as a process-based task and a problem-solving activity to meet rhetorical goals. Writing also calls for proficiency in grammar, spelling, punctuation, and style (Graham & Harris 2002).

According to Martin (1993, as cited in Chandrasegaran, 2013), the socio-cultural perspective on writing views it as a social activity where writers participate in "goal-oriented social processes" (p.142). Social contexts, audience expectations, rhetorical situations, and collaborative interactions are effective in shaping writing development.

The definitions above offer insights into the varied perspectives on writing from researchers in the field, emphasizing its cognitive, expressive, social, and iterative nature.

Understanding the cognitive processes underlying this complex, unnatural, productive skill is essential for effective writing instruction and literacy development. Several theoretical frameworks have been proposed to elucidate the complex nature of writing. An influential theoretical framework in this regard is the cognitive process model of writing, introduced by Flower and Hayes (1981). Writing comprises three primary operations for learners. They first plan, then transform ideas into text, and finally revise through the feedback they receive and personal reflection. Effective planning involves structuring the thoughts generated from brainstorming sessions. This entails gathering relevant information for the intended piece and arranging it in alignment with the writer's objectives. The act of translating these organized thoughts into written form constitutes the drafting phase, executed in accordance with the established plan. Subsequently, during the revision stage, the text undergoes scrutiny, allowing for necessary adjustments to be made. Prior to commencing the writing process, preparatory mental exercises and conceptualization are undertaken, marking the inception of the writing phase. The process of writing does not follow a linear path (Bereiter & Scardamalia, 1987). There are interconnections among the

stages of brainstorming, drafting, revising, and editing that allow writers to refine their ideas and develop more effective communication strategies over time.

Writing is the act of generating text to explore concepts and produce novel knowledge. Another theory to explain writing is sociocultural theory (Vygotsky, 1978). Based on the pioneering work of Vygotsky that suggests learning is impossible to be isolated from factors shaping individuals in social and cultural environment, it places emphasis on motivation and the social context of writing. It is not a solitary learning activity but rather a collaborative work through which students can learn from more experienced peers (Slavkov, 2015).

In relation to social cognitive theory, the significance of society and community in writing is highlighted, alongside the importance of cognitive processes in the writing process. Writing is not only a cognitive process but also a constructive one. It is influenced by the writer's emotions and attitudes as well as the surrounding society and individuals. (Flower, 1994).

Bandura's Social Cognitive Theory (1993) also provides a comprehensive framework for understanding how people acquire and maintain certain behaviors. It emphasizes the interplay between cognitive, behavioral, personal, and environmental factors. When applied to writing, this theory highlights how these factors influence a person's motivation and behavior. The three main elements of social cognitive theory in writing are observational learning, imitation, and modeling.

2.2. Approaches to Writing

To enhance writing activities in the classroom, teachers are to select or combine approaches that effectively accommodate time constraints, address students' needs, and

facilitate practice. These approaches have specific goals and steps tailored to teaching writing.

2.2.1. Writing as a Product

It is based on behaviourist principles that link language instruction to linguistic structures, specific language skills, and the establishment of habits (Silva, 1990). Sun & Feng (2009) posit that this approach prioritizes the result, which is to be a cohesive, text devoid of errors. Students replicate and modify texts supplied by textbooks or instructors (Badger & White 2000). It adopts a teacher-centred instruction, prioritizing the mastery of fundamental vocabulary and particular sentence structures (Burns & Siegel, 2017). On the other hand, it doesn't provide students with chances for interaction, discussion, or feedback from either the teacher or their classmates (Murray, 2009)

The primary emphasis of the product approach to writing instruction is guiding students in producing a refined final written piece through specific procedural steps. The first step starts with reading and focusing on the linguistic and formal features of the model text. In the second step, fixed patterns and forms are practiced in isolation. Following the imitation of model texts in guided practice, students apply what they have learned – patterns, target grammatical structures and vocabulary – to write an end product.

2.2.2. Writing as a Process

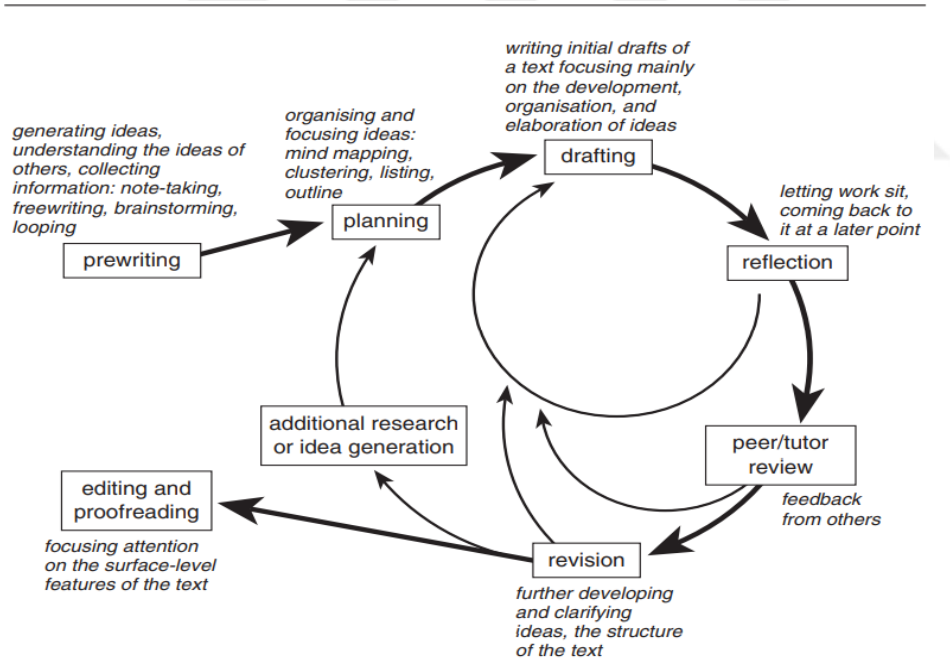
In writing instruction based on the process writing approach, the emphasis should not be on the outcome of the writing task, which is completed following particular rules of English writing style, making sure grammar is correct, and arranging things in a way that seems true to the audience (Brown, 2001) to the methods by which texts can be developed

(Hasan & Ahkand, 2010). Process approaches primarily center on understanding the actions writers take and the steps they follow.

According to Myles (2002) receiving feedback on their written work is what makes this approach effective for learners. By providing feedback, learners have the chance to reflect on their work and seek additional input. This process helps them refine their ideas, plans, and language, leading to improved writing skills. Furthermore, feedback not only aids in improving writing but also provides students with a sense of audience engagement (Myles, 2002).

Figure 1

The writing process modelled by Curry (1996)



Curry's model (1996) depicts the step-by-step progression involved in writing highlighting its iterative nature of writing. It commences with prewriting, during which writers generate ideas and structure their composition. Following this, in the drafting phase, these ideas are converted into written form with less emphasis on perfection. Subsequently, the revision phase ensues, where writers polish their drafts by enhancing clarity, coherence,

and organization. The editing phase comes next, focusing on rectifying grammatical, punctuation, and syntactical errors to improve overall quality. Finally, the process concludes with the publishing stage, where the refined piece is shared with its intended audience through various means.

The process-oriented approach to writing has its downsides. One drawback is the potential for students to feel overwhelmed or confused due to the lack of clear guidelines or structure. This can make it challenging for them to navigate through the various stages of writing (Kroll, 2001). Additionally, focusing solely on the process may result in neglecting

important writing conventions and standards, which could lead to issues such as grammar deficiencies, disorganized content, and lack of coherence in the final product (Flower & Hayes, 1981).

Furthermore, implementing the process approach demands a good amount of time, which may not always be feasible given curriculum constraints (Graham & Perin, 2007). Critics of process approaches have contended that for students to master the prevalent academic forms, explicit instruction in the structures and conventions of academic writing should be integrated (Curry & Hewings, 2003).

These challenges underscore the importance of adopting a balanced approach that integrates both process-oriented and product-oriented strategies to effectively teach writing skills. Brookes and Grundy (1990) posit that writing instruction with a focus on one approach or using a different approach at a time may lead to an imbalance in L2 writing proficiency. Thus, integrating these approaches enables EFL learners to transfer skills acquired from each mode to enhance their overall writing performance. To illustrate, the rhetoric of target text

types could be instructed through a product-based approach using modelling. This can then be supplemented with feedback and interactive elements from the process-based approach.

2.3. CAF Measures

In the field of second language acquisition (SLA), three aspects of language that are complexity, accuracy and fluency for measuring language development have been consistently emphasized (Wolfe-Quintero, 2009; Housen, et al 2012; Larsen-Freeman, 1978). Many researchers have concurred that second language performance, being multifaceted in nature, are effectively as well as objectively captured by the CAF triad (Pallotti 2009; Lu & Ai, 2015; Ellis, 2003; Norris & Ortega 2009). CAF measures provide a framework in practice for improving understanding of L2 writing abilities within classroom environments. resulting in certain pedagogical implications (Kuiken et al., 2010; Wigglesworth & Storch, 2009).

The study of CAF in research traces back to the 1970s. During that time, L2 researchers began using grammatical complexity and accuracy measures which were initially developed for L1 acquisition studies (Brown, 1973; Hunt, 1965 as cited in Housen, et al., 2012). Their aim was to establish an objective and quantifiable measure for assessing L2 proficiency.

Concurrently, there emerged a distinction in L2 pedagogy research between fluent L2 speech and accurate L2 usage to investigate communicative proficiency in classroom settings (Brumfit, 1979).

After Skehan (1989) proposed the integration of all these constructs as the primary dimensions of language proficiency, CAF was soon identified to be an indicator of growth in learners' language acquisition, which serves as an alternative to standardized proficiency

tests (Housen and Kuiken, 2009) typically used for educational placement, certification, and admission purposes. It has been also recognized as a fundamental concept in L2 writing studies over the past few decades (Lu, 2011; Ortega, 2003).

Complexity refers to the high-level use of language through the utilization of a diverse array of forms. It could include the level of subordination or other measures related to clauses, or the average length of units. Complexity stands out as the most intricate and challenging term to define and quantify among these linguistic elements as it encompasses various dimensions including syntactic, lexical, and cognitive aspects (Ortega, 2003; Pallotti, 2009). Additionally, what may be considered complex in one context or for one learner may not be perceived as such for another. Moreover, complexity can manifest differently across languages and proficiency levels, making it challenging to establish clear and universally applicable criteria for measurement. Therefore, the multifaceted nature of complexity and its contextual variability contribute to the challenge of defining and operationalizing it in SLA research (Housen et al., 2012).

Numerous metrics have been suggested for assessing complexity with many relying on the concept of a T-unit (Barrot & Gabinete, 2019; Choong 2014; Barrot & Agdeppa, 2020). A T-unit, standing for a minimal terminable unit, as defined by Hunt (1970), is the smallest textual unit. How Hunt's definition was practically applied is shown below through examples:

- The teacher announced the exam scores. 1 T-unit
- The teacher diligently graded the papers over the weekend / and announced the exam scores. 2 T-units

- The teacher, who had diligently graded the papers over the weekend, announced the exam scores to the students, / but some were disappointed by their results. 2 T-Units

Complexity can be best measured by subordination indices (Wolfe-Quintero et al., 1998). It was clarified that choosing the best indices to gauge complexity is mostly related to the aim of the measurement, which could be to investigate either the quality of writing, second language development or syntactical complexity (Bulte and Housen, 2014, as cited in Barrot & Gabinete, 2019).

Lu (2010) through automatized rating algorithms presented 14 indices to measure it in five different dimensions (see Table 1). In his study, Lu analysed a large amount of data from college-level second language writings based on these indices using an automated analysis tool. The results pointed to a very high level of reliability.

Table 1

Measures of syntactic complexity included in Lu's study (2010) and L2SCA

Dimension	Measure/Index	Code
Length of production unit	Mean length of clause	MLC
	Mean length of sentence	MLS
	Mean length of T-unit	MLT
Subordination	Clauses per T-unit	C/T
	Complex T-unit per T-unit	CT/T
	Dependent clauses per clause	DC/C
	Dependent clauses per T-unit	DC/T
Coordination	Coordinate phrases per clause	CP/C
	Coordinate phrases per T-unit	CP/T
	Verb phrases per T-unit	T/S
Phrasal sophistication	Complex nominals per clause	CN/C
	Complex nominals per T-unit	CN/T
	Verb phrases per T-unit	VP/T
Overall sentence complexity	Clauses per sentence	C/S

In this study, the two most used subordination measures for syntactic complexity, C/T and DC/C, were chosen due to their reliability and frequent use in previous research. They are recommended for evaluating syntactic complexity and are suitable for intermediate-level learners (Norris & Ortega, 2009), which aligns with the participant level in this study. Another reason why complexity at the clausal level was incorporated is that the recognition of clauses is a robust indicator of writing proficiency (Crossley & McNamara, 2014).

Different indices also have been employed to measure accuracy. Counting errors, error-free T-units, classifying errors, as well as holistic scales are the ways through which accuracy can be assessed.

The last dimension is fluency. As for proficiency, higher levels result in the creation of more fluent texts. Length of T-unit, error-free T-unit and clause were proposed by Wolfe-Quintero et al. (1998) to measure accuracy. However, the inclusion of any error-free indices complicates the distinction between fluency and complexity, as well as accuracy, for fluency primarily concerns the number of words written in a text whereas accuracy is related to the T-units or clauses without errors (Johnson, 2017)

How the different components of CAF interact with each other has been also examined. Skehan (2009) introduced the Trade-off Hypothesis, suggesting that CAF in speakers' speech require specific cognitive capacities, and there exists a trade-off among these developmental aspects. For instance, as Yuan and Ellis (2003) put forward when learners prioritize accuracy, it tends to result in less fluent language use. Conversely, according to Shekan (2009), cognitively complex tasks create the most tension between linguistic complexity and accuracy. Emphasizing fluency may lead to greater reliance on memorized language chunks, potentially compromising accuracy and limiting the ability to

process complex language structures. Introducing new expressions or word combinations might pose a challenge to either accuracy or fluency. Likewise, varied learning styles, environments and types of instruction may result in tension between dimensions on the level of emphasis.

In contrast, Robinson's Cognition Hypothesis (2001) challenges Skehan's notion, suggesting that not all complex tasks lead to trade-offs. The core argument is that more demanding tasks in language learning can stimulate learners to produce language that is more complex and accurate. When learners are challenged with tasks that require them to think critically, problem-solve, or express themselves in nuanced ways, they are compelled to use a wider range of vocabulary, grammar structures, and language functions. This not only enhances their language proficiency but also fosters deeper comprehension and retention of language skills. This hypothesis is grounded in the belief that L2 learners can tap into multiple attentional resources, allowing them to attend to different aspects simultaneously. Thus, it becomes likely that learners give concurrent attention to various L2 areas naturally. This approach also suggests that learners should begin with tasks of lower cognitive complexity and gradually advance to more challenging ones to facilitate their L2 development.

Focusing mostly on one or two CAF constructs, several studies have investigated CAF in a variety of purposes and contexts. The study by Lu and Ai examines syntactic complexity in college-level English writing among writers with diverse first language (L1) backgrounds (2015). By employing the L2SCA (Lu, 2010), the results indicated that writers with different L1 backgrounds demonstrated variations in syntactic complexity in their English writing. Specifically, they observed differences in the use of complex structures and sentence types among writers from various linguistic backgrounds. This suggests that the syntactic

complexity of English writing may be influenced by writers' native language backgrounds. These findings suggested that the variation in syntactic complexity couldn't solely be explained by proficiency level but was also influenced by learners' first language.

Another study was conducted by Khushik et al. (2019) examined syntactic complexity in the writing of EFL learners CEFR levels A1, A2, and B1. Through an analysis of learners' writing samples, the study investigates how syntactic complexity evolves as learners progress through these proficiency levels. The findings reveal that there is a significant increase in syntactic complexity as learners advance from CEFR level A1 to B1. This suggests that learners develop more sophisticated syntactic structures as they move towards higher proficiency levels in English writing.

Barrot and Agdeppa (2020) conducted a study to determine if measures of CAF effectively distinguish between four proficiency levels of second language (L2) writers and to explore the relationships among 18 different CAF measures. They employed the L2 Syntactic Complexity Analyzer developed by Lu (2010) to analyze over 5000 essays. The results revealed a significant interaction between language proficiency and CAF measures. Among the various measures, indices such as the length of production units, degree of phrasal sophistication, weighted clause ratio, and words per text were found to be most effective in differentiating proficiency levels. The study underscores the importance of considering complexity, accuracy, and fluency as indicators of L2 writing proficiency, with complexity exhibiting distinct patterns of growth compared to accuracy and fluency.

In addition to assessing the effectiveness of CAF measures, several studies have explored the connection between CAF in L2 writing and specific pedagogical interventions. For instance, Barrot (2021) and Wang et al. (2013) investigated the impact of automated written corrective feedback on accuracy. Kim Yang's study delved into the influence of topic

familiarity, while Tabari (2016) examined the effects of planning time on CAF in L2 writing. Pham (2021) looked into the effects of collaborative writing on fluency and Adams et al. (2015) explored the impact of task complexity on writing complexity and accuracy. Fathi and Rahimi (2020) investigated the effect of flipped instruction on CAF measures in an Iranian EFL context through a quasi-experimental research design.

In the Turkish EFL context, relatively few studies have explored the effects of different pedagogical interventions or task conditions on all dimensions of writing CAF. One notable study by Sahin-Kızıl (2023) examined the impact of data-driven learning on writing CAF. Regarding complexity, Yıldız and Yeşilyurt (2014) investigated the effects of task planning and rhetorical mode on lexical and syntactic complexity and overall writing quality of EFL learners' written production. Moreover, Genç (2012) investigated how strategic planning influences the accuracy of both spoken and written assignments in the performance of Turkish EFL learners.

2.4. Flipped Classroom

The flipped classroom represents an innovative teaching method that inverts the traditional approach to delivering course material and assigning homework (Bergman & Sams, 2012; Hamdan et al., 2013).

There are various names and definitions for the concept of flipped classroom (Hung, 2015). Some of the synonymous terms are "inverted classroom", "just-in time teaching", "inverted learning" which are used by Lage and Platt (2000), Novak et al. (1999), and Baker (2000) respectively. The use of formative and summative assessment was also suggested to utilize in class by Milman so as to flourish learning.

While researchers offer diverse definitions of the ‘flipped’ concept, there’s a shared understanding of the fundamental idea behind flipped classrooms. This involves reversing traditional instructional methods, fostering interactive lessons, making learning materials accessible beyond the classroom, analysing complex subjects, problem-solving, and promoting group or collaborative learning.

The early approaches to flipped classroom which are based on simply inverting or flipping what is done prior to and during class put their primary focus on the interchange of place and time of the activities rather than the key elements of current flipped classroom applications such as student engagement, autonomy and collaborative learning. (Abeysekera & Dawson, 2014). Flipped Learning Network (2014), a non-profit online community founded by Bergmann and Sams clarifies how it differs from the more commonly used term “flipped classroom.”

Instead of the usual classroom setting in which teaching takes place and students do assignments at home, the flipped classroom model reverses this. It moves lectures to outside-of-class time, while homework tasks are done during class. (Bergmann & Sams, 2012; Ash 2012). Students study course material usually provided through video lectures beforehand at their own pace and they attend the class to implement what they have learned. Essentially, flipping the classroom entails students initially encountering new content independently (Brame, 2013). In this way, more class time could be devoted to addressing questions, clarifying misconceptions, advancing new concepts as well as engaging in-depth hands-on tasks or focused problem-solving sessions (Chen Hsieh et al., 2017; Findlay-Thompson & Mombourquette, 2014). Table 2 shows how time can be allocated for activities in two distinct classroom settings (Bergmann & Sams, 2012, p.15).

Table 2

Comparison of class time in traditional versus flipped classroom

Traditional Classroom		Flipped Classroom	
Activity	*Time*	*Activity*	*Time*
Warm-up activity	5 min.	Warm-up activity	5 min.
Go over the previous night's homework	20 min.	Q&A time on video	10 min.
Lecture new content	30–45 min.	Guided and independent practice and/or lab activity	75 min.
Guided and independent practice and/or lab activity	20–35 min.		

Moreover, such a reversal enables teachers to foster their engagement with students individually since flipped classrooms are designed for student-centered instruction (Bergmann & Sams, 2012).

Flipped classrooms extend beyond simple online videos as highlighted by Bergmann and Sams (2012). They stress that the primary advantage of this model is the active participation of both students and instructors during in-class learning sessions. However, considerable effort is needed to develop and deliver content before class to support these interactive learning experiences for students. McLaughlin et al (2016) identify the fundamental elements of flipped classrooms as comprising materials for pre-class learning like video recordings, online reading, presentations, and podcasts. In-class activities encompass group discussions, tasks, individualized feedback peer review and scaffolding.

2.4.1. A Brief History of Flipped Classroom

The concept of flipping the classroom has been in practice in many subjects in primary and secondary as well as across a variety of disciplines of tertiary education for a long time. (Fung et al., 2021; Lee, 2023)

It was first mentioned by Baker (2000) at a conference focused on learning in higher education. He suggests this type of class frees teachers from the "tyranny of the lectures" and provides more time for active learning. He came up with the idea of flipping while teaching a class in multimedia program screen design in 1995. Finding the effort of his students to copy down what is written on his presentations a waste of time, Baker started to share the course material with the students in the university network prior to the class. Lectures, threaded discussions among peers, and quizzes were the online components of the out of class work. He used this opened-up time for classroom discussion structured around certain actions. The first action in class, *clarify*, includes a discussion of the out-of-class online materials and responding to any questions raised by his students. During the second stage, *expand*, students are encouraged to contribute to the given material. The last two phases *apply* and *practice* enables students to take part in a a number of application type of exercises in real-world settings using the new concepts they gained and synthesized through their insights and experience.

Around the same time as "Baker's Classroom Flip", Lage et al (2000) made a similar attempt and inverted their Microeconomics class at Miami University to address the needs of students with different learning styles by providing the course materials, mostly lectures, that can be comprehended through a variety of tools such as videotapes and printable PowerPoint Slides. Face-to-face classroom time started with a Q&A session and continued with hands-on activities like conducting an economic experiment to apply what has been

learned in real settings. Evidence from the perception survey at the end of the term revealed that students favoured the inverted classroom rather than the traditional lectures and would prefer to have their future field courses in the same structure. Additionally, students having different styles of learning such as dependent, collaborative, or independent benefited from this new inverted classroom by choosing the right method that works for them while covering the course material beforehand.

Created by Gregory Novak, a retired physics professor from Indiana University "Just-in-Time Teaching" (JiTT) helps students prepare for class ahead of time. Similar to other methods like Baker's Classroom Flip and Lage et al.'s Inverted Classroom, JiTT focuses on helping students grasp the subject better through preparatory materials. It is applicable to any field of study. (Gavrin, 2006; Green &Rowley, 2015). It uses Web-based preparatory materials and assignments referred to as "JiTT exercises" to replace classroom instruction which is traditionally didactic monologues to increase academic achievement. Interactive engagement, constructivism, and prompt feedback are what Jitt is based on pedagogically. The heart of JiTT is the continuous exchange of feedback and information between the online environment and the physical classroom. Students' responses to pre-class quizzes, comments and queries regarding the recorded lecture or assigned reading led the faculty to restructure their courses to make the classroom environment interactive as much as possible (Novak et al., 1999).

Peer Instruction (PI), developed by Eric Mazur in the early 1990s in Physics classes for non-majors at Harvard University, also contributed to the emergence of the flipped classroom idea. The findings of previous studies revealing the inefficiency of traditionally taught courses in grasping core concepts of Physics as well as the contribution of cooperative activities to learning and effective engagement in course material became the central

incentive to apply peer instruction in his courses for ten years (Crouch & Mazur, 2001). In a typical course with PI, students are given ConcepTests, multiple-choice questions to check their understanding of new concepts after a short lecture. After students decide on their individual answers, they discuss their answers with peers justifying the reasons. Finally, answers are reported to the instructor through clickers. To make room for such a cooperative activity in class, students are required to read the materials shared with them online and complete a short assignment related to the reading, which they get a credit in return. In this way, information transfer happens before the lesson through reading and assimilation of that information happens in class with the help of both individual and cooperative activities. Crouch and Mazur (2001) reported the data they gathered for ten years and the reactions are mostly positive.

The contemporary method of the flipped classroom is frequently associated with Jonathan Bergmann and Aaron Sams, who are educators from a college based in Colorado (Tucker, 2012). In the mid-2000s they initiated recording their lectures for their students who missed their end-of-day classes on account of the events, sports activities they participate in or students who struggle to keep up with the course pace and load. The initial feedback they received from these students and the rise in the test scores were evidence that their new approach had a positive impact. Beyond this effect, it was such a good tool to help personalize the education of each student. Not only the ones who struggled or missed the classes but also the students who would like to review the course content or prepare for the exams watched the videos that they recorded with a screen capture software and uploaded on YouTube (Bergmann & Sams, 2012).

As streaming video platforms have become more accessible, the flipped classroom model has rapidly spread across many educational institutions, from K-12 to higher

education. For instance, Khan Academy, founded in 2008 by Salman Khan also made an undeniable contribution to spreading the existing idea of flipping classrooms (Tucker 2012) and many teachers in K-12 education started to hop on the flipped classroom bandwagon. Thanks to the videos Khan uploaded to YouTube initially gave a rise to dropping lectures in classes and sparing more time for problem solving in class. Today, together with other open course providers such as TED-ED, Khan Academy in their ultimate form is not just at the service of students who enjoy self-paced tutoring outside the classroom, but educators, too. They can track the progress and redesign their courses accordingly (Khan, 2011).

2.4.2. Flipped Classroom: Four pillars

Although it was agreed that student learning needs, not a fixed methodology with strict rules, were at the center of flipped learning, its key aspects were initially uncertain (Chen et al., 2014). To this end, Flipped Learning Network (2014) identified the key features together with Pearson's School Achievement Services (2013). To successfully implement this approach, it is essential to incorporate these pillars into practice. Otherwise, what teachers do cannot go beyond just reordering the classroom and home activities (Hamden & McKnight, 2013).

Flexible environment is the first pillar to flourish flipped learning. Flipped classroom is conducive to different learning modes that allow teachers to utilize diverse active learning methods such as group discussion, collaborative tasks, and experiential learning activities to engage higher-order thinking abilities. Students can make their own choices regarding when and where to learn. Such an environment also leaves room for teachers to make on the spot changes in their instruction to enhance learning or in students' evaluation depending on the new needs and circumstances that appear.

Aligning with constructivist philosophy, flipped learning also requires a paradigm shift in *learning culture* and a role transformation between students who are to memorize the course content and simply show it on the exam paper without a deep understanding and teachers who are the "sage on the stage", are responsible for the delivery of the knowledge (King, 1993). This new approach to learning culture in flipped classroom gives an opportunity for the students to cover course content at their own pace before meaningful in-class peer works and collaborative activities that will help them synthesize it.

The third pillar of the flipped learning requires that students should be delivered *intentional content* outside the classroom so that the classroom time can be maximized to insert numerous activities considering the level and subject matter

Professional Educator is the last pillar. Replacing a traditional monologue type of lecture in a class with instructional videos in an activity-based flipped classroom may lead teachers to seem less active and visible in students' learning. However, flipping a classroom requires teachers to be more aware of the whole learning process than ever when compared to the traditional class setting since they need to take the necessary steps to provide the right amount and type of content and activities both before and during class depending on the needs of students. Demanding tasks such as careful observation of the process, continuous feedback and a good level of classroom management during in-class activities are integral parts of flipped classrooms, thus the importance of professional educators is vital in this sense.

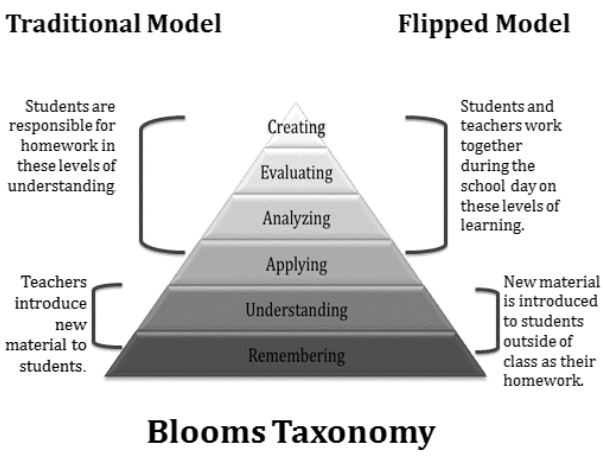
2.4.3. Theoretical Foundations of Flipped Classroom

Flipped classroom draws upon several theoretical principles as its foundation. One of them is blended learning. Such a combination of learning environments to reach the desired outcomes of a lesson turns it a into form of blended learning.

Another one that it relates to is Bloom's Taxonomy. Introducing a flipped classroom model enables educators to interact with their students independently with the lower-level cognitive works of Bloom's revised taxonomy (2001) such as gaining knowledge and comprehension of new material outside the classroom (Sams & Bergmann, 2013). This reserves more time to concentrate on advanced cognitive processes such as application, analysis, synthesis, and evaluation through hands-on activities during in-class sessions, which facilitate deeper learning. Sams and Bergmann (2013) also point out that courses containing educational material that is compatible with the lower order thinking skills of Bloom's taxonomy are the ones that could gain the most from transitioning to the flipped classroom teaching model. Figure 1 shows how levels of learning in Bloom's Taxonomy occur through traditional and flipped classroom activities.

Figure 2

Bloom's Taxonomy (2001) in relation to traditional and flipped classroom



By shifting tasks requiring greater cognitive effort to the classroom setting, Flipped classroom also empowers students to take advantage of peer interaction and receive guidance from their instructors Consequently, learning transforms into a collaborative endeavor. The collective building of knowledge aligns with Vygotsky's (1978) theory of social constructivism. In this framework, knowledge is acquired through active engagement and interactions where individuals exchange their experiences (Crawford, 1996).

Flipped classroom also relates to the zone of proximal development (ZPD), a fundamental construct in Lev Vygotsky's theory of learning and development. Considering the diversity of students' backgrounds, academic performance and their existing knowledge regarding the subject, it is highly likely that they are all operating within their ZPD to effectively develop their intended knowledge during class time thanks to their engagement with the class content and material beforehand.

2.4.4. Studies on Flipped Classrooms

With the increasing popularity of flipped classroom in a variety of contexts following the publications of Bergmann and Sams (2012, 2014), research in this area has also expanded significantly (Lee, 2023). According to the studies that presented systematic reviews of flipped classroom, the majority of flipped classroom studies have focused on students in higher education institutions, while significantly fewer studies have involved K-12 settings (Akçayır & Akçayır, 2017). There have been a good number of studies carried out in order to investigate its impacts on academic performance (Zengin, 2017; DeRuisseau, 2016; Boyraz & Ocak, 2017) motivation (Ferriz-Valero et al., 2022), perceptions and attitudes toward flipped classrooms (Ramnanan & Pound, 2017; Aljaraideh, 2019; Wanner & Palmer, 2015). The results of studies on flipped classroom comparing it with traditional teaching indicate that it is effective in increasing engagement (Amiryousefi, 2017), improving

grammar skills (Webb & Doman, 2016), fostering autonomy (Huang & Hong, 2016) and increasing interactions between students and teacher, and among students (Danker, 2015).

A few studies explored the effectiveness of flipped classroom utilizing a comparative study in terms of writing skills. Ekmekçi (2017) investigated the impact of flipped classroom on EFL students' writing skills within a Turkish higher education setting. Through a true experimental design involving 43 ELT students divided into experimental and control groups, the study compares the effectiveness of a flipped classroom model against traditional face-to-face instruction over fifteen weeks. In the flipped classroom, students engage with pre-class video lectures and participate in interactive activities during class, while the control group receives conventional teaching methods. The results indicate that students in the flipped classroom exhibit significantly enhanced writing performance compared to those in the traditional classroom. Moreover, the majority of students in the experimental group express positive attitudes towards the flipped classroom model, suggesting its potential to improve learning experiences in EFL contexts. Similarly, the results of Gurluyer and Elkilic's study (2020) indicated that the flipped classroom model positively impacted students' writing achievements and overall perceptions. Students in the flipped classroom demonstrated better writing performance and expressed favorable attitudes towards this innovative learning method, appreciating the increased interaction and engagement during in-class activities. However, none of the studies conducted within the Turkish EFL context have thoroughly investigated the impact of the flipped classroom on writing achievement in terms of CAF measures. As previously mentioned in this chapter, the research by Fathi and Rahimi (2020), utilizing a quasi-experimental design, stands as the sole existing study exploring this relationship.

3. METHODOLOGY

This chapter outlines the research type and design, details the research setting and participants, and describes the data collection process and the tools utilized for data gathering. It also covers the procedure, offering a comprehensive explanation of the intervention, its implementation, and the data analysis methods employed.

3.1. Research Design

This study investigated whether the flipped classroom model impacts EFL learners' writing achievement as well as their writing complexity, accuracy, and fluency measurements. It employed a mixed-methods approach, utilizing both quantitative and qualitative data collection tools such as pre-tests, post-tests, and questionnaires, and conducting focus group interviews post- experimental to ensure consistency in the data and to achieve valid research outcomes. According to Creswell (2009), a mixed-method approach offers more significant insights than qualitative or quantitative methods could individually provide to the research.

The research design employed is a pretest-posttest quasi-experimental framework. It is quasi-experimental because experimental and control group participants were not randomly assigned. Thus, a convenience sampling strategy was used. Such a design is often utilized when random assignment is impractical or eligible, particularly in educational interventions (Campbell & Cook, 1979). The research comprised two predetermined intact groups of classes, with the experimental group undergoing the flipped classroom intervention and the control group receiving traditional instruction in writing. Table 3 shows the design of the study.

Table 3

Research design of the study

Groups	Pre Test	Implementation	Post Test
Experimental (n=20)	Timed Essay Writing	Flipped Writing Classroom	Timed Essay Writing FC Attitude Questionnaire Focus Group Interview
Control (n=20)	Timed Essay Writing		Timed Essay Writing

Writing CAF constructs constitute the dependent variable, while flipped writing instruction forms the independent variable of the research.

3.2. Participants

The research participants were 40 students studying in the English Preparatory program at a state university in Turkey during the Spring Semester of the 2023-2024 Academic Year**.** Two B2 level classes were selected as experimental and control groups. All participants involved are Turkish native speakers, aged between 18 and 21, with diverse academic majors. The flipped classroom had fourteen female and ten male students, whereas the non-flipped classroom comprised eight female and thirteen male students.

3.3. Research Setting

The English language preparatory program lasts two academic terms for each level, defined at the beginning of the academic year through a placement test. The program's main goal is to provide students with the essential skills required to attain a satisfactory score in the English Proficiency Exam conducted by the university and to engage in their undergraduate studies in English effectively. The program lasts 15 weeks in both Fall and Spring semesters, with 24 hours of class time weekly. At the beginning of the Fall term, the

placement test groups students into three levels: A, B, and C, which align with CEFR A1, A2, and B1 levels, respectively.

Two instructors co-teach a single class, one designated as the main course teacher and the other as the skills teacher. The main course teacher particularly focuses on teaching grammar, vocabulary, and listening skills using the main course book, while the skills teacher is responsible for instructing academic reading and writing skills. To maintain uniformity in teaching, a standardized weekly syllabus for each level with pre-prepared classroom materials is provided to the teachers. The paired instructors collaborate closely to deliver the curriculum, following the weekly schedule.

The program assesses students' progress through midterms, reading quizzes, speaking tasks, and a final exam. The average end-of-year score should be 60 to be eligible to take the English proficiency exam. Students are also required to attend 85% of classes.

The testing department prepares and conducts all the exams. They assess grammar, vocabulary, listening, speaking, reading, and writing skills. However, the proficiency exam required for students to enroll in departmental courses does not incorporate a writing component.

In lower levels, students engage in a range of free writing tasks that involve informal or formal letters, describing pictures or places. These exercises help students become acquainted with various genres. These tasks familiarize students with text formats during examinations and provide prompts to guide their content creation. Upon reaching the Intermediate level, students begin crafting academic paragraphs on diverse subjects. This phase enhances their capacity to produce coherent, well-structured, and grammatically sound paragraphs. The emphasis lies in laying the groundwork for composing academic essays, a

skill they further develop at the onset of the B2 level in which students embark on writing academic essays covering a range of topics. This stage aims to elevate students' writing abilities to a more advanced level, enabling them to state complex ideas effectively.

3.4. Data Collection and Procedures

This study used various data collection tools: writing quizzes as pretests and posttests to assess writing performance, a Flipped Writing Class Attitude Questionnaire (Ekmekçi, 2014), and a focus group interview to get the participants' insights into the flipped classroom. Subsequent sections will elaborate on these instruments.

3.4.1. Pre and Post Tests

To comprehend the impact of flipped classrooms on the development of students' writing achievement in EFL classes, writing tasks to function as pre and post-tests were prepared. Both the experimental (flipped) and control (traditional) groups were instructed to write well-organized opinion essays of about 250 words answering the questions "Should money be spent on space exploration?" in the pre-test and "Should the exploration of remote and untouched wilderness areas be encouraged or restricted?" in the post-test in 50 minutes. Topics were related to the reading passages and listening units covered in the coursebooks. The writing assignments remained consistent, focusing on opinion essays, and the topics in both assessments were closely aligned. This decision was informed by the understanding that familiarity with topics and rhetorical styles influences the complexity and fluency of language production, particularly syntactic complexity (Lu, 2011; Yang, 2013). Additionally, research suggests that greater familiarity with topics is associated with higher levels of proficiency in content, accuracy, and fluency (Shekan, 2009; Robinson, 2001; as

cited in Yang, 2018). Another rationale for not using identical topics or wording for the essay prompts was to mitigate the impact of the testing effect.

3.4.2. Student Survey

Throughout the implementation of the flipped model, students were tasked with participating in both in-class activities and self-paced online learning, which involved video viewing and following online materials. To gauge students' perceptions of the flipped classroom model in writing, they were administered a survey that included background information, a questionnaire, and open-ended questions regarding their overall experience of the flipped classroom, videos, and activities outside and in the class. The questionnaire was designed by Ekmekçi (2014) and utilized in this study based on the researcher's permission. The questionnaire utilizes a Likert scale consisting of 25 items. It aims to investigate attitudes towards several areas. The reliability estimate of the questionnaire was found to be $\alpha = .92$ in that study.

3.4.3. Focus Group Interview

In addition to the student survey, this study also adopted a focus group interview as an instrument to collect qualitative data to have a better understanding of student's opinions. Employing both tools in one study can help researchers achieve this. The interview was physically held in Turkish with 10 students. It started with ice-breaking questions to make them comfortable expressing their thoughts and feelings. It continued with the guideline questions consistent with those in the survey to elicit more explanatory responses regarding their flipped classroom experience.

3.5. Procedures

3.5.1. Pre-Implementation

Based on informal needs analysis through my observation, experience in writing classes for more than a decade and informal and formal level meetings with colleagues as well as students, the researcher determined that adjusting the approach to designing writing courses by dedicating additional time to writing practice and adopting a more process-oriented syllabus could lead to improved writing outcomes. To implement these adjustments, the current writing activities and curriculum were modified to align with the four pillars of flipped learning. This revised course structure was piloted with a limited group of students (n=8) during the Fall semester of the 2022-2023 academic year at the institution. Based on informal feedback from students, the class material-sharing platform shifted from Google Class to Microsoft Teams for Education, the university's provided digital hub, to alleviate issues such as account switching for login and difficulties with file formats during downloads. In order to offer additional ways for accessing materials and to prevent any technical issues that might deter students from engaging in pre-class activities, they were informed that they could also obtain the materials and videos via USB flash drives.

Prior to the implementation, both the experimental (n=20) and control (n=20) groups were assigned the initial essay task as a pre-test to assess their present writing abilities. The pre-test data was also utilized to verify if both groups were comparable in terms of writing proficiency.

The researcher ensured that every student enrolled in the flipped writing class had access to the Internet and a working device, such as a computer or smartphone, to access the online content. Since students were already actively engaged with the Microsoft Teams

platform for tasks like downloading class materials, submitting assignments, and communicating with teachers, they were familiar with the layout and interface. Accessing the online classroom material posed no difficulty for them.

The final preparatory step before implementing the experimental involved introducing flipped learning specifically tailored to the writing class for the experimental group. It could be challenging for students to simultaneously adapt to a new learning approach while comprehending course material and even academically advanced students may additional guidance on effective collaboration and optimizing the advantages of the new learning model (Grypp & Luebeck, 2015). Therefore, it is crucial to initially illustrate the workings of the flipped classroom approach to students. This was also done to prevent any misunderstandings or uncertainty. Orientation was conducted through a video presentation, followed by discussions about the procedures that would be followed over the subsequent six weeks. They were also informed that online materials and pre-class activities would be available on Microsoft Teams days before the writing class.

3.5.2. Implementation

3.5.2.1 Traditional (non-flipped) Classroom

The control group followed the existing syllabus and covered the same topics and materials as the experimental groups did. In a typical non-flipped classroom setting, instruction started with the introduction of a new topic, accompanied by note-taking and guided instruction (See Table 4). They were assigned the same in-class activities as in the flipped classroom. However, the frequency and completion of the activities depended on the amount of time remaining after the topic was introduced and clarified in class. Similarly,

while students initiated the writing process in class, due to time constraints, the completion of the essay writing task was usually assigned as homework.

Below is a comparative table illustrating the activities for a flipped versus a non-flipped writing classroom in a 120-minute session, both following a product-process approach to teach essay writing. Each row represents a different stage of the lesson.

Table 4

Comparison of lesson design and activities: traditional versus flipped classrooms

Activity	Flipped Classroom	Traditional Classroom
Pre Class Preparation	Students review video lectures and materials on essay writing at home.	-
Introduction	Brief review of previous materials. Q&A on video and related materials (~10 mins) In-class activities for practice	Direct instruction on essay structure. In-class lecture and practice activities on essay writing structure and examples. (~50 mins)
Writing Activity	Students start drafting essays in class using knowledge from pre-class materials. (~40 mins)	Guided practice on drafting essays (~40 mins)
Peer Review or Self-edit checklist	Students engage in peer review of each other's drafts based on criteria learned from pre-class materials. (~30 mins)	Teacher-led peer review session / Teacher's direct feedback. (~30 mins, if remaining time permits)
Revision	Students revise essays based on peer feedback and additional guidance provided in class. (~10 mins)	Students revise essays out of the class based on earlier feedback (due to time limit)
Final Draft	Students finalize their essays for submission, incorporating feedback and revisions. (~10 mins)	Submission of final drafts later (due to time limit)

3.5.2.2 Flipped Writing Classroom

The course material outlined in their course syllabus to be covered and activities to do in the flipped classroom within three classroom hours through a span of 6 weeks were as follows:

Table 5

Activities in the flipped writing classroom

	Week 1	Week 2	Week 3
Content	Essentials of Essay Writing 1 - Organizing and Developing an Essay - Thesis Statements	Essentials of Essay Writing 2 - Body and Conclusion Paragraphs	Descriptive Essay
Objective	to get familiar with the organization of an essay and to construct thesis statements	to learn the basic structure of an essay and to construct body and conclusion paragraphs.	To write an essay describing an ad for a product, business, or service.
Out-of-Class Activities	• Watching a video on how to organize and develop an essay. • Video-related tasks (2) • PPT and Handouts on Introductory Paragraph (Hooks and Thesis Statements)	• Watching the selected YouTube video on body and conclusion paragraphs. • Video Related Tasks • Study Hand out on Topic sentences	• Watching the selected YouTube video on descriptive essay • Study a model essay and descriptive language
In Class Activities	• Brief Review and Q&A • Peer-review to check thesis statements	• Individual work: Write topic sentence form body paragraphs,	• Brief Review and Q&A

	• Collaboratively working on forming an introductory paragraph • Teacher's Immediate Feedback	write a suggestion, a prediction, or an opinion for conclusion • Individual feedback	• Check answers to the exercise for sensory words. • Brainstorm: In groups of three, working on a graphic organizer - a cluster diagram • Individual work: Write a descriptive essay – First Draft • Using a Self-assessment checklist before submission.
	Week 4	Week 5	Week 6
Content	Run-on Sentences and Fragments	Cause Effect Essay	Opinion Essay
Objective	To identify and correct run-on sentences and fragments to improve sentence clarity and structure.	To compose a cause and effect essay that clearly explains the relationship between events or ideas	To craft a opinion essay, supporting a viewpoint with logical arguments and evidence.
Out-of-Class Activities	• Revise first draft of descriptive essay • Watch Youtube videos on Run-on and Fragments • Video Related Task: Handout	• Watch Youtube video on Cause Effect Essay • Study a sample essay • Transitions and Casual Conjunctions	• Revise first draft of cause effect essay • Watch Youtube video and study PPT file on Opinion Essays • Plan with an outline
In Class Activities	• Check answers Handout • Peer Review – Second Draft	• Brief Review and Q&A • Writing practice	• Feedback on Cause Effect Essay • Brief Review and Q&A Writing Practice

Although the instructional material remained consistent, the activities were diverse in their design and objectives. Pre-class activities focused on passive learning, transitioning

to active learning through pair, group, or individual work during class sessions. For many weeks, the initial pre-class activity involved watching pre-selected YouTube and coursebook videos provided by the instructor, serving as a bridge between existing and new knowledge. Video selections prioritized high quality, appropriate duration, alignment with instructional content and language proficiency levels, and relevance to the syllabus.

The videos utilized in this study were not made by the course teacher as using ready-made instructional videos, such as those available on YouTube, in a flipped classroom setting is supported by several practical as well as pedagogical advantages. Bishop and Verleger (2013) argue that these videos often provide high-quality content created by experts, which can be more engaging and accessible than teacher-made materials. This is particularly beneficial when educators lack the resources or time to produce professional-level videos. Moreover, Hung (2015) highlights the efficiency of utilizing existing online resources, allowing teachers to dedicate more time to planning interactive in-class activities and providing personalized feedback. According to O'Flaherty and Phillips (2015), exposure to diverse teaching styles and perspectives through multiple video sources is another advantage enriching students' understanding of complex topics like writing.

Each video was accompanied by an online task related to its content to ensure exposure to new material. Writing practice was given most of the time, with the first ten to fifteen minutes typically allocated to discussing pre-class activities, providing feedback on video-related tasks, and addressing questions on newly introduced concepts. In-class writing activities aimed at fostering higher-level skills varied, encompassing pair-work, individual writing, and collaborative essay composition following brainstorming and mind mapping for outlines. Given the emphasis on practice during class, students completed their writing assignments in-session, receiving feedback directly from the instructor and peers through

peer review worksheets. Self-assessment checklists were also utilized to help students understand task requirements, check how well they do and spot the developments in their writing.

3.5.3. Post Implementation

Following the six-week implementation period, both groups (n=40) underwent a post-quiz using procedures identical to those of the pre-test to assess the effects of flipped instruction on students' writing performance. Subsequently, a student survey and focus group interview were conducted with the experimental group to explore their perspectives on the implementation. Before the focus group interview, participants were informed that the entire session would be recorded. The researcher assured anonymity, consistent with all data collection methods, and emphasized that there were no correct or incorrect responses. Participants were addressed by the nicknames they had chosen.

3.6. Data Analysis

3.6.1. Quantitative Data Analysis

Through SPSS, handwritten essays of participants were first transcribed to Microsoft Word (.doc) and Plain Text (.txt). *NeoSCA* (Tan, 2022), which is a rewrite of L2SCA (Lu, 2010) was used to analyze the essays in Plain Text format for complexity indices as well as to segment sentences for convenient measurement of accuracy based on the indices determined (i.e. EFC/C, EFT/T).

The rationale for using NeoSCA is that it works through a user-friendly command line interface in Windows and that L2SCA requires a know-how of Python, a high-level programming language to enter the codes for commands to analyze the inputs.

It has been utilized in numerous studies to calculate indices due to its effectiveness and convenience (Kim, 2014; Mancilla et al., 2017; Yang et al., 2022). It was found that L2SCA is a dependable instrument for calculating indices and validated its effectiveness in examining variations in complexity (Polio &Yoon (2018).

The writing CAF indices were shown in Table 6. The errors counted for accuracy are syntactic (i.e. errors in word order, omission of sentence parts causing fragments, run-on sentences; and morphological (i.e. pluralization, tense, subject-verb agreement, passive formation). Errors of punctuation were not considered, and spelling mistakes were counted only if it impedes meaning. Furthermore, Grammarly software, which checks grammar automatically was employed to detect errors within the essays. However, manual evaluation was utilized to determine the severity and frequencies of errors. Its reliability and validity in evaluating grammatical accuracy were verified (Vojak, et al., 2011; Gain et al., 2019).

Table 6

CAF measures employed, formula, analysis and coding

Construct	Measures and Formula	Analysis and Coding
Syntactic Complexity	• Clauses per T-unit (C/T) # of clauses / # of T-units (Levkina & Gilabert, 2012; Ellis & Yuan, 2004;Wigglesworth and Storch 2009) • Dependent clauses per clause (DC/C) # of dependent clauses / # of clauses (Wigglesworth and Storch 2009; Wolfe-Quintero et al. 1998; Knoch et al., 2015; Skehan & Foster, 2012)	*NeoSCA* (Tan, L. (2022), a rewrite of L2 Syntactic Complexity Analyzer (L2SCA) by Xiaofei Lu
Accuracy	• Error-free T-units (EFT) # of error-free T-unit / # of T-units • Error-free Clauses (EFC/C) # of error-free Clauses / # of Clauses (Storch & Wigglesworth, 2007; Ellis & Yuan, 2004; Polio & Shea, 2014) Fernández Dobao, 2012)	*Grammarly* and Researcher
Fluency	• Average Number of words (AW/Text) # of word • Average Number of T-units (AT/Text), # of T-units (Amiryousefi, 2016; Barrot & Gabinete, 2019; Wigglesworth & Storch, 2009)	*NeoSCA* (Tan, L. (2022), a rewrite of L2 Syntactic Complexity Analyzer (L2SCA) by Xiaofei Lu

An independent samples t-test was conducted on the pre-tests before the study to ensure the equivalence of writing proficiency between both groups prior to the intervention.

The findings showed no significant difference between the groups before the study. The test revealed comparable writing performance between flipped and non-flipped students prior to the intervention. ($p = .612 > .05$)

Table 7

Research questions and data analysis

Research Question	Type of Data	Instrument	Analysis
1. Does a flipped writing class affect EFL students' writing achievement? If so, how?	Quantitative	Pre and Post Tests	Descriptive Statistics Paired Samples T-tests ANCOVA
2. Does a flipped writing class their writing CAF compared to a non-flipped writing classroom? If so, how?	Quantitative	Pre and Post Tests	Descriptive Statistics Independent samples T-tests
3. What are the perceptions of EFL students toward flipped writing classrooms?	Quantitative & Qualitative	Flipped Classroom Survey Focus group interview	Descriptive Statistics Content Analysis Coding

As shown in Table 7 above, participants had two tests, one before the intervention and another one following the intervention. To score these tests, instead of the current in-house rubric which is usually tailored to specific institutional needs, reflecting the specific pedagogical focuses of the institution rather than broadly accepted criteria (Hamp-Lyons, 1991) and due to this may lack the same level of standardization, IELTS Task 2 holistic

rubric was used to establish a standard. The rubric has a rating scale between 0 and 9 with four descriptors.

IELTS Task 2 holistic rubric is a widely recognized and standardized assessment tool with well-established validity and reliability. This rubric is specifically designed to evaluate writing proficiency across various levels and has been extensively validated in diverse educational contexts (McNamara, 1996). Cheng & Curtis (2004) found Cronbach's alpha values for the IELTS writing test to be in the range of 0.75 to 0.80, suggesting that the IELTS rubric provides reliable and consistent scoring across different raters and test occasions.

All the essays were scored by two raters and according to the results of inter-rater reliability test, it was .90 for the pretest essays and .88 for the posttest essays, which indicated a high correlation between the scores of raters and reliability.

Paired samples t-tests were employed to see whether there exist any differences between pre and post-test scores obtained through rating with IELTS rubric within the groups.

Furthermore, a one-way between-groups analysis of covariance (ANCOVA) was employed to assess the efficacy of flipped compared to traditional writing instruction by examining the scores on the post-test.

To address the second research question, several independent sample t-tests were run to explore the differences if any between experimental and control groups in their post-tests regarding writing CAF measures shown in Table 6. As for the differences within the experimental group, paired-sample t-tests were run.

Descriptive statistics were employed to calculate percentages for each item based on the data collected through the Flipped Classroom Attitude Questionnaire (Ekmekçi, 2014).

The use of parametric test above was considered appropriate despite the relatively small sample size of participants. This decision is supported by the fact that the data met the critical assumptions required for parametric testing. Firstly, the pre- and post-test scores were found to be normally distributed, a condition that is essential since parametric tests can yield valid results even with smaller sample sizes when normality is present (Field, 2013). Levene's test confirmed the homogeneity of variances between the control and experimental groups, ensuring that the variance was consistent across groups—a key requirement for the validity of t-tests and ANCOVA (Tabachnick & Fidell, 2019). Parametric tests are recognized for their robustness under the conditions when assumptions of normality and homogeneity of variance are satisfied, allowing for more accurate estimates of group differences and effects (Pallant, 2020). Moreover, the writing proficiency scores, measured using the IELTS holistic rubric, are on an interval scale, making them suitable for parametric analysis (Cohen, Manion, & Morrison, 2018).

To further substantiate the findings, non-parametric tests—less reliant on these assumptions — were also conducted, and demonstrated consistent results with parametric tests, thereby reinforcing the reliability of the parametric test outcomes. This consistency across methods supports the decision to use parametric tests given that the underlying assumptions were met and the data characteristics were suitable for these analyses.

3.6.2. Qualitative Data Analysis

As for qualitative analysis, content analysis through categorization, coding, and interpretation were employed. The qualitative data, acquired through open-ended survey questions and focus group interviews, were initially recorded and transcribed with the help of online speech-to-text transcribing tools. Content analysis was utilized to assess student perceptions of flipped writing classroom. The process began with the development of a

codebook encompassing categories overall experience, course management system, out-of-class activities, in-class activities, learning writing through flipped classroom, each with precise subcodes, definitions and examples. Two coders applied these codes to a subset of the open-ended survey responses. To measure inter-coder reliability, percentage agreement was calculated by determining the proportion of consistent coding decisions out of the total number of coding instances, indicating an agreement rate of 92%. Discrepancies among coders were addressed through discussions and resolution meetings, where coders reviewed and discussed the cases of disagreement to achieve consensus. Adjustments to the coding scheme were made as necessary to enhance clarity and ensure uniform application of codes. Thus, the validity of the findings regarding student experiences with flipped writing classroom were intended to be supported.

4. RESULTS

In this chapter, the results of the study examining the impact of a flipped writing class on the writing complexity, accuracy, and fluency of EFL learners are presented. Additionally, the study investigated students' perceptions of the flipped writing class to provide a more holistic understanding of its effects. Employing a quasi-experimental pretest-posttest design, the research utilized both quantitative and qualitative data collection instruments, including pre- and post-tests for writing performance, a student survey, and a focus group interview. Together, these data sources offer a multifaceted understanding of how the flipped classroom approach influences EFL learners' writing skills and their attitudes toward this innovative teaching method. It presents both quantitative and qualitative findings.

4.1. Overall Writing Performance

One of the aims of this study is to investigate the impact of flipped writing class on the writing performance. To address this, the difference in the mean scores of pre and post tests for each group were examined.

To determine the appropriate statistical analysis for the pre-test and post-test data of the experimental and control groups, first it was examined whether the data were normally distributed. Given the participant count was below 50, the Shapiro-Wilk normality test was employed. The results of the analysis are shown in the Table 8. The pre and post-test scores for each group were normally distributed, as assessed by Shapiro-Wilk's test. Therefore, a paired-samples t-test was conducted to compare the results of pre and post tests within each group.

Table 8

Results of Shapiro-Wilk test

		Statistic	*Df*	*Sig.*
Experimental	Pre-test	,925	20	,125
	Post-test	,925	20	,121
Control	Pre-test	,908	20	,057
	Post-test	,917	20	,085

As seen in Table 8, the mean score in the pre-test increased from 5,10 to 5,75 in the post-test for the flipped classroom. The change was statistically significant (t (19) = -5,94, p < .05) with a large effect size (d=1,32). Likewise, the mean score from pre-test to post-test also changed positively (M=5,30 SD=1,17; M=5,60 SD=1,14) for the non-flipped classroom and it was also significant (t (19) = -2,85, p < .05, d=0,64) It was also found out that the flipped classroom (M=5,75 SD=1,12) outperformed the non-flipped classroom (M=5,60, SD=1,14) in the post test.

Table 9

Descriptive statistics and results of paired-samples t-test, investigating the differences between pre and post-test scores within the groups.

		n	*M*	*SD*	*t*	*df*	*p*	*Cohen's d*
Experimental	Pre-test	20	5,10	1,17	-5,94	19	,000*	1,32
	Post-test	20	5,75	1,12				
Control	Pre-test	20	5,30	1,30	-2,85	19	,010*	0,64
	Post-test	20	5,60	1,14				

*p<.05

Additionally, ANCOVA was employed to assess the efficacy of flipped compared to traditional writing instruction by examining the scores on the post-tests of the groups.

ANCOVA enables control over the influence of pretest scores on the post-test, thereby offering a more accurate estimation of the treatment effect (Huitema, 2011) Thus, the pre-test scores of writing performance were set as covariates in this analysis. In order to perform ANCOVA statistical analysis, the data ensuring the assumptions of normal distribution and homogeneity of regression slopes is required (Field 2009). Therefore, related assumption checks were performed prior to the analysis. Levene's test indicated that there was a homogeneity of variances for post-test scores for flipped and non-flipped classrooms (p =.301). The assumption of the homogeneity of regression slopes was also met (p = .663 for post-test). As can be seen in Table 10, there was a significant effect of the flipped writing classroom on the post-test writing scores after controlling for pre-test writing scores (F (1, 38) = 5,09, *p.*<.05).

Table 10

Results of ANCOVA for post-test between groups

Source	SS	df	F	p	Partial η2
Intercept	3,392	1	104,732	,000	,850
Pre-test (covariate)	41,228	1	17,142	,000	,317
Group	1,008	1	208,328	,000*	,849
Error	7,322	37	5,095	,030	,121

*p<.05

4.2. Complexity, Accuracy and Fluency Measures

The second research question examined whether there were notable differences between the groups regarding CAF in their writings. To investigate this, the data was initially analyzed using Shapiro-Wilk tests to assess the normality of the distribution. The results indicated that all variables were normally distributed. Consequently, two parametric tests—Independent Samples t-test and Paired Samples t-test—were performed to explore the

differences in writing CAF between the groups in the post-test, as well as the differences between the pre-test and post-test within each group.

Table 11

Descriptive Statistics of CAF measures for flipped and non-flipped writing classrooms

		Experimental				*Control*			
		Pre-test		Post-test		Pre-test		Post-test	
		M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Complexity	*C/T*	1,68	,38	1,56	,27	1,59	0,18	1,55	0,27
	D/C	0,37	0,12	0,33	0,10	0,32	0,06	0,31	0,09
Accuracy	EFC/C	,67	,18	,79	,12	0,77	0,10	0,80	0,10
	EFT/T	0,62	0,19	0,76	0,15	0,73	0,11	0,74	0,13
Fluency	AW/T	291,4	96,73	278,7	74,92	323,85	76,13	280,55	45,89
	AT/T	20,15	5,47	20,1	6,47	23,85	6,04	20,5	5,01

Table 11 presents the descriptive statistics for the writing CAF measures of both groups in the pre-test and post-test and Table 12 shows the results of independent samples t-test, examining the differences between experimental and control groups in improving the participants' writing CAF.

Syntactic complexity was measured by both C/T and D/C, which are indices for subordination. As illustrated in the table below, there is a slight decline in the means of complexity measures for both groups from the pre-test to the post-test. Similarly, the means of fluency measures for both groups also show a slight decrease from the pre-test to the post-test. Regarding accuracy, the means for both groups increased from the pre-test to the post-test. However, as seen in Table 12, it was found that there is no statistically significant difference in any of the CAF measures when comparing the two groups (for all CAF indices, $p>0.05$)

Table 12

Results of Independent samples t-test, exploring the differences between experimental and control groups in their post-tests regarding writing CAF

		t	*df*	*p*
Complexity	*C/T*	,052	38	,959
	D/C	,196		,845
Accuracy	EFC/C	-,245		,808
	EFT/T	,471		,640
Fluency	AW/T	-,094		,925
	AT/T	-,219		,828

A set of paired sample t-tests were conducted to examine the impacts of flipped writing instruction on the writing CAF of the experimental group. As seen below in Table 13, no statistically significant difference was observed between pre and post-test complexity scores of flipped classroom (t (19)=1,33, p>.05) indicating that flipped classroom did not improve writing complexity based on the given complexity indices.

Table 13

Descriptive statistics and paired sample t-test, exploring the differences in syntactic complexity between pre and post-tests of experimental group

	Pre-test		Post-test				
Complexity	*M*	*SD*	*M*	*SD*	t	df	p
C/T	1,68	,38	1,56	,27	1,33	19	,199
D/C	0,37	0,12	0,33	0,10	2,08	19	,051

As seen in Table 14 below, the means for the accuracy indices “error-free clauses” and “error-free T-units” increased from the pre-test to the post-test within the experimental group. Participants had fewer errors in varying categories in the post-test, the second writing performance at the end of the flipped intervention. The difference was also statistically

significant for both indices (t(19)=-2,85, p<.05; t(19)=-2,84, p<.05) indicating that flipped instruction increased the accuracy in participants' writings.

Table 14

Descriptive statistics and paired sample t-test, exploring the differences in accuracy between pre and post-tests of experimental group

	Pre-test		Post-test				
Accuracy	*M*	*SD*	*M*	*SD*	t	df	p
EFC/C	0,67	0,18	0,79	0,12	-2,85	19	,010*
EFT/T	0,62	0,19	0,76	0,15	-2,84	19	,010*

*p<.05

The means of fluency measures show a slight decrease from the pre-test to post-test within the experimental group and the results of t-tests indicate that the difference is not significant for both measures, Average number of words and T-units per text. It can be suggested that flipped classroom did not have an effect on the writing fluency of the participants (t(19)=,554, p>.05; t(19)=,036, p>.05)

Table 15

Descriptive statistics and paired sample t-test, exploring the differences in fluency between pre and post-tests of experimental group

	Pre-test		Post-test				
Fluency	*M*	*SD*	*M*	*SD*	t	df	p
AW/T	291,4	96,73	278,7	74,92	,554	19	,586
AT/T	20,15	5,47	20,1	6,47	,036	19	,972

4.3. Students' Perceptions Toward Flipped Classroom

4.3.1. Overall Experience

Students were asked about their overall experience following six-week Flipped Classroom instruction, using four related statements in the questionnaire. Their responses were statistically analyzed and presented as percentages in the table below. Moreover, to assess the reliability of the survey used in this study, Cronbach's alpha was calculated for the responses. The analysis, conducted using SPSS, gave a Cronbach's alpha value of .87, indicating a high level of internal consistency among the survey items. This value was obtained after accounting for items with negative wording, which were reverse-coded to ensure consistency in scoring. This high alpha value supports the robustness of the survey instrument in measuring the perceptions of the participants reliably.

Table 16

Percentages of students' perceptions toward overall flipped classroom experience

Item	Statement	SA %	A %	N %	D %	SD %
16	"I would recommend the Flipped Writing Class to a friend."	25,0	65,0	10,0	-	-
17	"I would rather watch a traditional teacher-led lesson than a video lecture."	-	5,0	10,0	55,0	30,0
22	"Traditional classes are always more enjoyable."	-	5,0	15,0	20,0	60,0
23	"Traditional classes are always better than Flipped Classes."	-	5,0	15,0	35,0	45,0

The table above presents insights into participants' preferences and experiences in the flipped writing classroom. The analysis of students' perceptions reveals a predominantly positive experience. A significant majority, 90%, would recommend this approach to others, indicating strong satisfaction, with 10% remaining neutral. Item 17 suggests a strong preference for the video-based instruction used in the flipped classroom.

Conversely, the negatively worded items further support the favorable view of the flipped classroom. Item 22 reveals that 80% of students disagree or strongly disagree with the statement that “traditional classes are always more enjoyable”, implying that “they find the flipped classroom more engaging”. Similarly, Item 23 shows that 80% of students disagree or strongly disagree, indicating a clear preference for the flipped classroom model over traditional teaching methods.

These percentages mean that a significant majority of students perceive the flipped classroom approach as more beneficial, enjoyable, and preferable compared to traditional methods. The positive reception and preference highlighted in the responses also suggest that the flipped classroom model effectively enhances student engagement and satisfaction. This feedback can be valuable for educators considering or currently implementing the flipped classroom approach, as it underscores its potential to improve the learning experience.

To further explore their overall experience, students were asked in focus group interviews: “*How would you evaluate or describe your overall experience with the flipped classroom?”* The qualitative analysis of their responses yielded several codes, which are presented in Table 17.

Table 17

Codes related to flipped classroom overall experience

		Survey		Focus Group	
Question	Codes		*f*		*f*
Describing overall experience	effective	✓	8		
	fun	✓	7	✓	2
	improving autonomy	✓	3	✓	1
	motivating	✓	6		2
	getting prepared for the course	✓	5	✓	1
	beneficial	✓	6	✓	3
	more time for practice	✓	4		
	more time for feedback	✓	5		
		✓			
	challenging	✓	3	✓	2

The content analysis of qualitative data from surveys' open-ended questions and focus group interviews revealed various codes reflecting participants' perceptions of the flipped writing class. The most frequently mentioned positive aspects included the class being "beneficial" (*f*=6 in the survey, *f*=3 in focus group interview), "effective" (*f*=7 in the survey), "fun" (*f*=7 survey, *f*=2 focus group interview), and "motivating" (*f*=6 survey, *f*=2 in the focus group interview). Additionally, students appreciated having "more time for feedback" (*f*=5 in the survey) and "more time for practice" (*f*=4 in the survey). The flipped classroom was also noted for "improving autonomy" (*f*=3 survey, *f*=1 focus group mentions) and "getting prepared for the course" (*f*=5 survey, *f*=1 focus group mentions). However, not all feedback was positive; some students found the experience "challenging" (*f*=3 survey, *f*=2 focus group mentions). This indicates that while the flipped writing class was generally well-received, there were still areas where improvements could be made or challenges to be addressed.

Additionally, the appreciation for “more time for feedback” and “more time for practice” indicates that students valued the increased opportunities for interaction and engagement offered by the flipped format. Moreover, the recognition of the flipped classroom’s role in “improving autonomy” and “getting prepared for the course” suggests that students perceived benefits related to their independent learning skills and readiness for class activities.

Overall, these findings highlight a positive perception of the flipped writing class among participants, with a recognition of its benefits alongside some acknowledgment of difficulties. Some example responses are provided below:

S16: “I found the flipped writing class to be highly useful”

S3: “The flipped classroom approach helped me become more responsible for my learning.”

Student M: “I think it’s beneficial. Learning the topic beforehand allows us to ask questions more comfortably since it clears up any doubts in our minds. You can come up with questions because we know the subject.”

Student Z: “… because I need to ask questions immediately when something comes to mind while listening to the teacher at that moment. In this regard, flipped classroom was a bit challenging for me.”

4.3.2. Course Management System

Microsoft Teams served as the primary course management system in the flipped classroom, mainly utilized for storing and sharing relevant classroom resources such as out-of-class activities and video lectures, as well as facilitating communication and feedback. It

is of great importance to explore students' perceptions of the system as the learning environment stands as one of the fundamental pillars of flipped learning.

Table 18

Percentages of students' perceptions toward course management system

Item	Statement	SA %	A %	N %	D %	SD %
24	"Microsoft Teams as a Course Management System is a useful tool for following the course requirements."	25,0	75,0	-	-	-
25	"Microsoft Teams is an important part of my learning."	20,0	65,0	10,0	5,0	-

The table above provides insights into students' perceptions regarding the use of Microsoft Teams as a course management system in the flipped writing classroom. Regarding the usefulness of Microsoft Teams for following course requirements, a significant majority of students, 75.0%, agreed or strongly agreed, indicating a widespread acknowledgment of its utility in facilitating course-related tasks. Similarly, when asked about the importance of Microsoft Teams in their learning, 65.0% expressed agreement, with an additional 20.0% strongly agreeing. However, it is notable that a minority of students expressed neutrality or disagreement on both statements, suggesting some variability in perceptions. Overall, the majority of students view Microsoft Teams as a valuable tool for managing course requirements and enhancing their learning experience in the flipped writing classroom, underscoring its importance in supporting the educational process.

Table 19 presents an analysis of the codes derived from responses to the open-ended question "What was your experience like using Microsoft Teams for the courses?" in the survey.

Below are a few examples of their responses:

S5: “I liked everything in Microsoft Teams was organized, making it easy to find what I needed.”

S12: “The chat feature in Microsoft Teams was helpful for asking questions and getting quick responses from my teacher.”

S4:“I could access Microsoft Teams from my phone, tablet, or computer”

S9:“There were a few times when Microsoft Teams froze or didn’t work properly on my super slow and old device”

Among the identified codes, “Sharing classroom material” emerged as the most frequently mentioned aspect, with a notable frequency of *(f*=18). This suggests that students found Microsoft Teams particularly effective for sharing and accessing course-related materials, indicating its utility in facilitating content sharing within the virtual classroom environment. Additionally, codes such as “Ease of use,” “Familiar,” and “Accessible” had frequencies of *(f*=16), *(f*=15), and *(f*=13) respectively, highlighting positive perceptions regarding the platform’s user-friendliness, and accessibility across various devices. In this context, students’ familiarity refers to their prior experience with the platform, which was made available to them by the university in the previous semester. They have been using it since the start of the academic year to access classroom materials, communicate directly with their teacher, and stay updated on announcements. On the other hand, technical issues, high disk space usage and slow performance on some devices, emerged as a less prevalent code, with a frequency of *(f*=3). This suggests that while the majority of students had positive

experiences, a minority encountered challenges related to storage space and system responsiveness, potentially impacting their overall perception of the platform.

Overall, these findings underscore the importance of Microsoft Teams as a course management system in facilitating content sharing and accessibility.

Table 19

Codes from survey related to course management system

Question	Codes	*f*
Use of CMS	Ease of use	16
	Accessible	13
	Familiar	15
	Communication	9
	organization	7
	Sharing classroom material	18
	Technical issues	3

4.3.3. Out-of-class Activities

Participant mentioned their engagement with out-of-class exercises, primarily consisting of ready-made YouTube video lectures and accompanying video exercises designed to prepare them for in-class writing assignments beforehand. Table 20 below outlines the frequencies of responses to these specific statements in the questionnaire.

Table 20

Percentages of students' perceptions toward video lectures

Item	Statement	SA %	A %	N %	D %	SD %
1	"I like watching the video lectures."	15,0	55,0	25,0	5,0	-
2	"I regularly watch the video lectures."	35,0	45,0	10,0	5,0	5,0
6	"I am able to follow the lesson through videos even if I miss a lesson in actual class."	60,0	25,0	10,0	5,0	-
9	"YouTube videos uploaded on Microsoft Teams by the teacher are very useful."	20,0	70,0	10,0	-	-
10	"YouTube videos uploaded on Microsoft Teams are informative enough to understand the features of the essay types."	40,0	50,0	10,0	-	-
11	"I feel more motivated when I watch the videos rather than listening to the teacher in the class."	30,0	45,0	20,0	5,0	-
15	"I can watch the videos anywhere, anytime I want by downloading the videos"	20,0	65,0	5,0	5,0	5,0
21	"I find the video lectures engaging."	15,0	70,0	10,0	5,0	-

Across various statements in the questionnaire, students expressed predominantly positive views toward these activities. For instance, a significant percentage of students indicated a preference for watching video lectures, with (70.0%) agreeing that they enjoy watching these lectures. Moreover, a substantial proportion of students, (80.0%) reported regularly watching these video lectures, indicating high engagement. The utility of these video resources was also underscored, with a majority (70.0%) that found them informative and useful, as indicated by agreeing on Item 9 and Item 21 (85.0%).

Additionally, students highlighted the flexibility afforded by these resources, with (65.0%) agreeing. Despite the overwhelmingly positive responses, a small percentage of students expressed some reservations, particularly regarding motivation, as (20.0%) indicated feeling more motivated when watching videos than listening to the teacher in class.

Overall, these findings emphasize the efficacy of video lectures and follow-up tasks in the flipped writing classroom.

Table 21

Codes related to video lectures and follow-up video tasks

			Survey
Question		Codes	*f*
Thoughts on Out-of-class activities	Video Lectures	Content:	
		making content engaging	6
		making content easy to comprehend	4
		educational	8
		informative	6
		ideal	3
		interesting	4
		enjoyable	5
		Examples:	
		sufficient	15
		improves understanding	6
		detailed analysis	3
		Visual and auditory:	
		good enough	9
		high quality	12
		use of graphics	5
		professional	3
		colorful	2
		Level of Language:	
		clear	13
		same level	11
		pronunciation	2
		- teacher appearance	4
		- more detailed examples	2
	Follow-up Video tasks	improves understanding	8
		ideal	3
		opportunity for practice	4
		- redundant	3
		- ineffective	2

The survey analysis provides multiple insights into students' perceptions of video lectures and follow-up video tasks in the flipped writing classroom.

Students generally found the content of the video lectures engaging *(f*=6), educational *(f*=8), and informative *(f*=6), with many considering it easy to comprehend *(f*=4), interesting *(f*=4), and enjoyable *(f*=5). The examples provided in the videos were seen as sufficient *(f*=15) and helpful in improving understanding *(f*=6), though some students desired more detailed analysis *(f*=3). Visual and auditory aspects of the videos were positively received, with students noting high quality *(f*=12), good use of graphics *(f*=5), and professional presentation *(f*=3). However, a few students noted a preference for more detailed examples *(f*=2) and some were in favor of teacher-made videos. *(f*=4). Regarding the level of language, the videos were deemed clear *(f*=13) and at an appropriate level for the students *(f*=11), with pronunciation concerns being minimal *(f*=2). Follow-up video tasks were also positively viewed, as they were believed to improve understanding *(f*=8) and provide valuable practice opportunities *(f*=4). Nevertheless, a few students found these tasks redundant *(f*=3) as the videos themselves were found to be explanatory enough and included detailed analysis of the target genre features or ineffective *(f*=2), due to the difficulty in focusing on their pre-class assignments. This difficulty might partly be related to the hectic schedule at the language school with a 24-hour lessons weekly as well as a great variety of home assignments. Overall, these findings highlight that while the video lectures and tasks were generally well-received, there are areas for potential improvement to address students' varied needs.

Below are a few examples of their responses:

S2: "I liked the explanations in the videos I watched, and they were as they should be. The length of the videos was also sufficient."

S8: “Since visuals and sounds are important, eye-catching elements should stand out. From what I have seen in the videos, I can say that they were colorful and vibrant.”

S1: “Language level was quite good and understandable. The pronunciation of words was clear.”

4.3.4. In-class Activities

Students were also asked about the in-class activities throughout flipped learning. Codes emerging from the responses to survey questions are presented in the table below.

Table 22

Positive and negative codes related to in-class activities

Question			Codes	*f*
Thoughts on In-class activities	Individual tasks	+	enough practice	4
			increased focus	4
			effective	8
		-	limited time	3
			anxiety	2
			taking too much time	1
	Group work	+	interaction	7
			fun	5
			exchange of ideas	4
		-	inefficient	3
			uneven participation	4
			conflict	2
	Peer feedback	+	effective	5
			noticing errors	6
			improving writing	7
		-	feeling uncomfortable	5
			limited knowledge	4

The survey on in-class activities in a flipped writing classroom for EFL students revealed several positive and negative perceptions. Among the positive codes, individual tasks were praised for being effective *(f*=8), increasing focus *(f*=4), and providing enough practice *(f*=4). Group work was highly valued for promoting interaction *(f*=7), being fun *(f*=5), and facilitating the exchange of ideas *(f*=4). Peer feedback was also seen positively, with students finding it useful for noticing errors *(f*=6), improving writing *(f*=7), and being generally effective *(f*=5). These positive perceptions suggest that students appreciate the structure and opportunities for collaboration and detailed feedback that these activities provide.

However, there were notable negative codes as well. Individual tasks were criticized for causing anxiety *(f*=2), having limited time *(f*=3), and sometimes taking too much time *(f*=1). Group work faced issues such as uneven participation *(f*=4), inefficiency *(f*=3), and conflicts *(f*=2). Peer feedback was seen as uncomfortable by some students *(f*=5), and there were concerns about the limited knowledge of peers providing feedback *(f*=4). Additionally, a specific issue raised by students was the negative perception of "writing on the last weekday" *(f*=6). This particular code highlights the inconvenience and potential stress associated with having writing tasks scheduled at the end of the week, which might interfere with students' preparation for other courses, personal plans, or simply contribute to end-of-week fatigue.

Addressing these negative perceptions may involve better time management strategies, such as distributing individual tasks more evenly throughout the week to avoid end-of-week pressure. Ensuring equal participation in group work could be managed by setting clearer guidelines and roles within the group. Enhancing the comfort and effectiveness of peer feedback might require additional training or support for students to

provide constructive and knowledgeable feedback. Overall, these measures could help mitigate the identified challenges and improve the overall effectiveness and satisfaction with in-class activities. Some example responses are provided below:

S:20“It is very comfortable and nice; I can easily express my thoughts and receive better feedback.” (Individual work)

S:6“It was the work in which I could write most comfortably. Since all the responsibility was on me, I also gained more freedom.” (Individual work)

S13: “I don’t enjoy group work and mostly don’t find it productive.”

S:19“Giving feedback on my peers’ work was difficult for me, but I enjoyed receiving feedback from them.” (Peer feedback)

4.3.5. Learning Writing Through Flipped Classroom

Table 23

Percentages of students' perceptions toward learning through flipped classroom

Item	Statement	SA %	A %	N %	D %	SD %
3	"I feel that Flipped Writing Class has improved my writing skill."	60,0	25,0	15,0	-	-
4	"I am more motivated to write essays in the Flipped Writing Class."	40,0	55,0	5,0	-	-
5	"I believe that Flipped Learning is an effective way of improving writing skill."	35,0	55,0	10,0	-	-
8	"Watching the analysis of several sample essays helps me produce more organized essays."	40,0	60,0	-	-	-
12	"When I watch writing courses through videos, I enjoy writing more."	35,0	40,0	25,0	-	-
14	"Thanks to Flipped Writing Class Model, we have more time to practice writing in class."	30,0	70,0	-	-	-
18	"I think that Flipped Learning is a waste of time for improving my writing skill."	-	5,0	5,0	50,0	40,0
19	"If were a teacher, I would not prefer a Flipped Writing Class."	-	5,0	10,0	55,0	30,0
20	"I believe that Flipped Writing Class didn't contribute much to my writing skill."	-	-	10,0	65,0	25,0

The survey on students' perceptions towards learning writing through a flipped classroom reveals a predominantly positive attitude. A significant majority of students felt that the Flipped Writing Class improved their writing skills, with 85% endorsing this view. Additionally, 95% of students reported increased motivation to write essays in this format. Similarly, majority of students agreed on its efficiency on writing skills. The analysis of sample essays was particularly well received, with 100% of students agreeing that it helped them produce more organized essays. Furthermore, 75% indicated that they enjoy writing more when engaging with writing courses through videos. The same high percentage acknowledged that the Flipped Writing Class Model provided them with more time to practice writing in class.

On the negative side, only 5% of students considered Flipped Learning a waste of time for improving writing skills, while 90% disagreed. Additionally, 85% stated they would not prefer a Flipped Writing Class if they were teachers, suggesting some reservations about the method from a teaching perspective. Lastly, 90% of students disagreed with the statement that the Flipped Writing Class did not contribute much to their writing skills, reinforcing the overall positive sentiment towards the approach.

The overwhelmingly positive responses indicate that students found the flipped classroom model highly beneficial for learning writing skills. The high percentages of students agreeing that the flipped model improved their writing skills, increased their motivation, and helped them produce more organized essays suggest that the structure and resources provided in the flipped classroom were effective in enhancing their learning experience. The appreciation for the increased time to practice writing in class highlights the value of having more in-class time dedicated to practical application and personalized support from instructors.

The enjoyment derived from watching writing courses through videos indicates that students find this method engaging, which is crucial for sustaining their interest and motivation in the subject. The positive reception of video analysis of sample essays shows that students value detailed, practical examples to guide their learning.

However, the slight reservations expressed about the flipped classroom model being potentially wasteful or not preferable from a teaching perspective suggest that while students appreciate the benefits as learners, they may recognize challenges in implementation or have concerns about the effectiveness from an instructional standpoint. This could be due to the additional preparation required by instructors or the need for a higher level of student self-discipline and motivation to fully benefit from the flipped model.

Overall, the findings demonstrate strong student support for the flipped classroom approach in writing instruction, underlining its effectiveness in improving writing skills, increasing engagement, and providing valuable in-class practice time. Addressing the minor reservations could further enhance the effectiveness and acceptance of this teaching model.

Table 24

Codes related to learning writing through flipped classroom

			Survey		Focus Group	
Question		Codes		*f*		*f*
Pros and Cons of the flipped writing classroom	+	More time to write in class	✓	7	✓	1
		More time for feedback	✓	6		
		motivation	✓	5	✓	3
		Different learning styles	✓	2	✓	1
		Internet Access	✓	3	✓	2
	-	Limited number of quiet study areas at dormitories and library.	✓	1	✓	2
		Heavy study load for pre class activities	✓	6		

Besides, the examination of qualitative data unveiled diverse codes that reflected participants' attitudes towards the flipped classroom approach to learning.

Below are a few examples of their responses:

Student B: "In my opinion, one of its good sides is offering different materials for students with various understanding styles."

Student G: "The internet is a big problem, and these videos may not always be watched, which means this content may not be accessible, to be honest."

S19: “Having more time for practicing in class and receiving more feedback.”

In terms of pros, the most frequently mentioned aspect was the opportunity for students to have more time to write during class sessions, which was highlighted by 7 survey respondents and 1 focus group participants. This suggests that students value the dedicated class time for writing tasks, possibly because it allows for focused and uninterrupted writing sessions.

Additionally, the availability of more time for feedback received positive feedback from 6 survey respondents, indicating that students appreciate the opportunity to receive timely and detailed feedback on their writing assignments. Furthermore, aspects such as increased motivation and catering to different learning styles were also mentioned as positive aspects of the flipped classroom model, albeit with lower frequencies. The data indicates that students appreciate the variety of pre-class and in-class activities catered to different learning styles, such as video lectures, collaborative work, teacher feedback face-to-face, and more. For example, the availability of video lectures appeals to visual learners who benefit from visual aids and demonstrations, while collaborative work caters to social learners who thrive in group settings. Furthermore, face-to-face teacher feedback provides auditory learners with opportunities to engage with the material through listening and speaking, enhancing their understanding of writing concepts.

However, there were also concerns raised by students regarding the flipped writing classroom model. One recurring issue was related to internet access, with 3 survey respondents and 2 focus group participants expressing concerns about the reliance on technology for accessing pre-class materials. This indicates the inequality in having access to online resources, which could potentially hinder their participation in the flipped classroom activities.

Additionally, both survey and focus group data highlighted the limited availability of quiet study areas in dormitories and libraries as a potential drawback of the method, suggesting that environmental factors can impact students' ability to engage effectively with the pre-class materials. Moreover, some students mentioned the heavy study load associated with pre-class activities as a negative aspect, indicating that the flipped classroom model may require additional time and effort outside of regular class hours.

In conclusion, while the flipped writing classroom model received predominantly positive feedback from students, there are also legitimate concerns that need to be addressed to ensure its effectiveness and accessibility for all students. These findings underscore the importance of considering both the benefits and challenges of the method when implementing it in writing education contexts.

5. DISCUSSION AND CONCLUSION

5.1. Overall Writing Performance

Following the statistical analysis of the pre and post-tests, a notable enhancement in student writing scores was observed in the flipped class. Thus, employing the flipped classroom method proves to be a highly effective strategy for improving English writing skills. These findings align with prior research conducted in EFL contexts (Ekmekçi, 2014; Abedi et al., 2019; Soltanpour & Valizadeh, 2018) and across various other academic disciplines (Bates & Galloway, 2012; Talley & Scherer, 2013), where the flipped classroom model has demonstrated efficacy in stimulating learning and improving academic outcomes.

The quantitative findings from pre- and post-tests indicate a favorable outcome for the flipped classroom approach. This can be attributed to the comprehensive array of practice opportunities afforded to students within the flipped classroom setting, coupled with ongoing feedback mechanisms, including peer reviews and individual consultations with the instructor. In contrast, students in non-flipped classrooms faced constraints due to time limitations, as instructors adhered to traditional methodologies of delivering content solely within the classroom environment, without providing any practice or content prior to the class. Participants in the flipped classroom were further engaged in collaborative writing exercises, potentially contributing to their enhanced writing proficiency, particularly in terms of accuracy and self-correction.

Another distinguishing factor was the accessibility of video lectures for flipped classroom students, enabling them to revisit instructional materials as needed and facilitating content comprehension, even in cases of classroom absence. Such advantages were not extended to their counterparts in traditional classroom settings.

Qualitative evidence further supports the effectiveness of the flipped classroom model, as student feedback consistently underscores the value of interactive elements within this learning environment. Many students express increased engagement and deeper comprehension of course materials, particularly through collaborative writing tasks that foster a sense of ownership and active participation. Moreover, qualitative analysis reveals a significant positive shift in students' attitudes towards writing, with heightened confidence and a sense of achievement attributed to personalized feedback and support mechanisms within the flipped classroom framework. These qualitative insights complement the quantitative data, providing a comprehensive view of the benefits associated with the flipped classroom approach.

5.2. Writing CAF

This study also investigated the differences between the flipped and non-flipped writing classrooms in terms of writing complexity, accuracy, and fluency (CAF). Although the experimental group outperformed the control group in the post-tests scores, the results revealed no statistically significant differences between these two groups in any components of the triad. In terms of complexity, this study yielded similar results to those of Fathi and Rahimi (2020). As for accuracy, the findings are contradictory.

The results regarding syntactical complexity are also consistent with previous studies by Şahin-Kızıl (2023), Alghizzi (2017), Jalili and Shahrokhi (2017), Alghizzi and Deen (2020), Teng and Huang (2021) and Thai (2015), which examined the impacts of varied learning environments, writing task conditions and instructional methodologies such as Data-Driven Learning, Blended vs. Online Learning vs. Traditional Learning. As for accuracy and fluency, the results were partly in line with the aforementioned studies. In

terms of fluency, there were contradictory results with the those of Fathi and Rahimi (2020), Şahin-Kızıl (2023) in that in those studies experimental groups outperformed in fluency.

As mentioned above, there is not sufficient number of research into the relationship between flipped classroom and writing CAF to provide comparability and present either supportive or controversial results. It is also worth mentioning that there is a high variability of the results among the existing studies related to the same type of variables and writing, which could be explained partly with the usage of different indices for the constructs of writing CAF.

The lack of increase in writing CAF of students' textual products in the experimental group could be attributed to the relatively brief duration of the study (six weeks in total). As noted by Storch (2009), improvements in second language skills may not be readily apparent or observable within a short period of time. Language acquisition and development are complex processes that often require consistent practice, exposure, and time to manifest noticeable progress. Therefore, when evaluating language learning outcomes or proficiency levels, it's important to consider the duration and intensity of language instruction, as well as other factors such as individual learner differences and motivation. Moreover, developing complexity particularly may require a year of instruction at tertiary level (Ortega, 2003).

Another rationale for the non-existence of difference in the CAF constructs may be grounded in the hypothesis of Dynamic Systems Theory (DTS) proposing that not only L2 development but also its constructs are dynamic, and nonlinear, showing intraindividual variability and that it is essential to conduct longitudinal studies to determine the direction and scale of the improvement (Larsen-Freeman, 2011; Verspoor, et al., 2004). Although this study was not designed longitudinally and did not test this hypothesis in relation to writing CAF, the results provided some insight into the expectation of the theory. Since the

participants were regarded as homogeneous in terms of their language level and similar backgrounds, the idiosyncratic nature of development that changes over time and individual differences that could affect the performance were not considered. Therefore, the yielded results of the study could have differed and pointed to a better picture of the direction in the development of writing CAF provided that it included both intra and inter-individual measurements at several time intervals.

Another explanation could be that the instructional focus in flipped classroom was on a variety of dimensions, not solely on the syntactical complexity although it incorporated activities for more complex language structures such as sentence combination and transformation activities and collaborative tasks that raise awareness regarding the choice of syntax (Wigglesworth & Storch, 2012).

Additionally, the participants' language proficiency level was B2 on the CEFR scale, which possibly made their improvement more challenging and requiring a longer period to achieve noticeable progress regarding complexity (Green, 2004).

Concerning fluency (AW/T and AT/T), a possible explanation for the lack of difference between the groups could be related to its being challenging to improve in a relatively short time, which is also the case in the complexity construct. Another explanation could be about the time spent by the participants of the experimental group on planning demands (i.e. idea generation, organization of paragraphs) of a writing task prior to the writing process. Throughout the intervention, a mix of product and process approaches as a novel one to teaching writing, was adopted in the flipped writing classroom emphasizing the necessity of planning stage for a better writing performance in terms of cohesion and coherence. Therefore, it is likely that fluency was negatively affected in a timed writing task

due to the allocated time for planning compared to the control group who were instructed based on the product approach.

Changing the learning context to flipped classroom together with the novel approach may have challenged some students and led to not having a certain level of improvement in other CAF constructs, complexity, and accuracy. Being accustomed to a traditional learning context, they may have had difficulty in adapting. The students' remarks from the survey and focus-group interview support this suggestion although it is valid only for a relatively small number of participants.

The participants' length of texts could be also related to internal factors such as motivation and their own standards of having a certain number of words in their productions. Meeting the word limit criteria given in the task (250 words both in pre and post-tests) could be the benchmark even though they were able to produce a longer text.

In terms of accuracy, although yielded results showed no difference between the experimental and control groups, there is a statistically significant improvement in both indices of accuracy within the experimental. Intragroup analysis for accuracy showed that participants had a higher ratio in this category of indices. This could be explained through the trade-off hypothesis that suggests a simultaneous improvement in all dimensions of language proficiency is not possible as learners prioritize certain aspects at the expense of others. (Foster & Skehan, 1999). Therefore, the improvement in their accuracy may have led to decrease or stability in other constructs. Their prioritization of accuracy over complexity and fluency may stem from their individual attentional resources for writing, the assessment criteria in the research setting, teachers' expectations and or simply individual preferences. Besides, continuous feedback (Wigglesworth & Storch 2009) and ample practice (DeKeyser, 2007) through flipped classroom on the errors, particularly the ones impeding meaning, may

be effective both in this prioritization and in enhancing noticing and as a result, leading to higher accuracy (Schmidt, 2022).

5.3. Students' Perceptions Toward Flipped Classroom

The results show that students generally hold positive perceptions of the flipped classroom model. Studies such as Aljaraideh (2019), Ekmekçi (2017), Basal (2012), Gürlüyer and Elkılıç (2020) support these findings, highlighting similar positive student experiences and engagement in flipped classroom settings. The majority would recommend this approach to others, reflecting high satisfaction levels. They preferred video lectures over traditional teacher-led lessons, finding the flipped classroom more engaging and beneficial. While some students found it challenging, many appreciated the class's effectiveness, and the increased time for practice and feedback (Hall & DuFrene, 2016)

Students found Microsoft Teams highly useful for managing course requirements in the flipped classroom. It facilitated content sharing and accessibility, with most students appreciating its ease of use, familiarity, and organization. However, a minority faced technical issues, which slightly impacted their overall perception. These findings align with the results of studies by Kurt (2019), Egbert et al. (2015), Al-Maroof et al. (2020) which underscore the effectiveness of Microsoft Teams in educational settings despite occasional technical challenges.

As for the out-of-class activities, primarily consisting of video lectures, were well-received by students. They enjoyed the flexibility of watching videos at their convenience and found the content engaging, informative, and beneficial for understanding essay features. However, a few students felt that follow-up tasks could be redundant. These perceptions are consistent with findings from studies by Budge (2015), Johnson (2013), and

Bishop and Verleger (2013) which report positive student engagement and learning outcomes from video-based instruction in flipped classrooms.

In-class activities were generally viewed positively. Individual tasks helped increase focus and practice, while group work facilitated interaction and idea exchange. Peer feedback was effective in improving writing skills. However, some students faced anxiety, uneven participation in group work, and discomfort with peer feedback. These mixed perceptions are similar to those reported by Çalışkan, (2016), Van Alten et al. (2019) and Wang (2017), who noted both positive and negative sides of in-class activities in flipped classrooms.

Lastly, students highlighted several pros of the flipped writing classroom, such as more time for writing and feedback, increased motivation, and the ability to cater to different learning styles. On the downside, issues like internet access, limited quiet study areas, and a heavy pre-class workload were noted. These observations align with studies by Yang (2017), and Akçayır and Akçayır (2018) who also found that while flipped classrooms offer significant benefits, they require addressing logistical, workload and resource-related challenges to maximize their effectiveness.

5.4. Implications for Practice

To enhance the effectiveness of flipped writing classrooms, educators should provide students with the option to choose between ready-made instructional videos or teacher-made videos, catering to diverse learning preferences and needs. However, creating videos for flipped classroom content coverage can be time-consuming and challenging, particularly for teachers with lower IT skills. Therefore, workshops on software tools and the use of AI to create videos can empower educators to develop high-quality instructional materials

efficiently. Additionally, textbooks including instructional videos could be selected to provide standard content accessible to all students, facilitating curriculum integration. Prior to implementation, it is essential to assess both students' and teachers' technology literacy to ensure proficiency in using course management systems and basic software tools. Teachers should also familiarize themselves with all features of course management systems to effectively promote the four pillars of the flipped classroom. Moreover, educators should recognize that videos are not the sole instruments for flipped classroom activities and can incorporate alternative tools such as PowerPoint slides and online quiz platforms to cover content related to lower skills of Bloom's taxonomy. Addressing concerns raised by students, educators should consider scheduling writing classes on days other than the last day of the week to mitigate fatigue and maintain student motivation.

5.5. Implications for Future Research

Future research on flipped writing classrooms should prioritize studies with larger sample sizes and randomly grouped participants to improve the generalizability of findings. Longitudinal studies or longer study durations with post-delayed tests can capture the sustained impact of flipped classrooms on writing development, particularly in terms of CAF. Moreover, researchers should explore the use of alternative indices of writing, such as phrasal level corpus analysis, to assess complexity, especially among upper-level students. Understanding teachers' perspectives on flipped classroom implementation and its impact on instructional practices and student learning outcomes can provide valuable insights for future research endeavour.

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APPENDIX A: PRE-TEST

2023 – 2024 Academic Year
SPRING TERM

WRITING

Name Surname:
Class:

Read the statement below and write a well-organized opinion essay (at least 250 words).

Make sure that your essay includes:

- an introduction, body (3) and a conclusion paragraph,
- and specific reasons and examples to support your claim.

Some countries spend millions of dollars on space exploration. However, some think that it is not essential. They think that money should be spent on the more urgent needs of people.
Should money be spent on space exploration?

APPENDIX B: POST-TEST

2023 – 2024 Academic Year
SPRING TERM

WRITING

Name Surname:

Read the statement below and write a well-organized opinion essay (at least 250 words).

Make sure that your essay includes:
- an introduction, body (3) and a conclusion paragraph,
- and specific reasons and examples to support your claim.

Should the exploration of remote and untouched wilderness areas be encouraged or restricted?

APPENDIX C: FLIPPED CLASSROOM STUDENT SURVEY

Background Information

Age:
Department:
High school you graduated from:
Have you had any experience with flipped classroom before?:

Flipped Writing Classroom Questionnaire

Item	Statement	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
1	I like watching the video lectures.					
2	I regularly watch the video lectures.					
3	I feel that Flipped Writing Class has improved my writing skill.					
4	I am more motivated to write essays in the Flipped Writing Class.					
5	I believe that Flipped Learning is an effective way of improving writing skill.					
6	I am able to follow the lesson through videos even if I miss a lesson in actual class.					
7	Flipped Learning helps me prepare for the exams since I can watch all related videos before the exams.					
8	Watching the analysis of several sample essays helps me produce more organized essays.					
9	YouTube videos uploaded on Microsoft Teams by the teacher are very useful.					
10	YouTube videos uploaded on Microsoft Teams are informative enough to understand the features of the essay types.					
11	I feel more motivated when I watch the videos rather than listening to the teacher in the class.					

12	When I watch writing courses through videos, I enjoy writing more.					
13	I can study for the exams by re-watching the videos.					
14	Thanks to Flipped Writing Class Model, we have more time to practice writing in class.					
15	I can watch the videos anywhere, anytime I want by downloading the videos.					
16	I would recommend the Flipped Writing Class to a friend.					
17	I would rather watch a video lecture than a traditional teacher-led lesson.					
18	I think that Flipped Learning is worth the time for improving my writing skills.					
19	If I were a teacher, I would prefer a Flipped Writing Class.					
20	I believe that Flipped Writing Class contributed much to my writing skill.					
21	I find the video lectures engaging.					
22	Flipped classes are more enjoyable.					
23	Flipped classes are better than traditional classes.					
24	Microsoft Teams as a Course Management System is a useful tool for following the course requirements.					
25	Microsoft Teams is an important part of my learning.					

1. Please evaluate the videos for flipped writing classroom based on the criteria below.
   Content:
   Examples:
   Visiuals and auditory:
   Level of language:
   Follow-up video tasks:
   Length:
2. Please evaluate the in-class activities for flipped writing classroom based on the criteria below.
   Group work:
   Individual work:
   Peer feedback:
3. What are the pros and cons of the flipped writing classroom?

4. How would you describe your overall experience with the flipped classroom model in detail?
5. How would you evaluate Microsoft Teams in terms of your experience with it during the courses?

APPENDIX D: FOCUS GROUP INTERVIEW QUESTIONS

1. What are the pros and cons of the flipped writing classroom?
2. How would you describe your experience with the flipped writing classroom giving details and examples?
3. How would you evaluate the videos you have watched before our lessons?
4. How would you evaluate the in-class activities?
5. What are the challenges you have faced during the flipped classrooms?

APPENDIX E: INFORMED CONSENT FORM

Bu araştırma Öğretim Görevlisi Deniz Melike Ertürk tarafından yürütülmektedir. Bu form sizi araştırmanın kapsamı hakkında bilgilendirmek için hazırlanmıştır. Bu çalışmanın amacı öğrencilerin İngilizce'nin yabancı dil olarak öğretildiği Ters Yüz edilmiş yazma sınıfı (Flipped Classroom) ile ilgili algılarını ve bu sınıfın yazma başarılarına etkisini incelemektir. Ters Yüz sınıf öğrencilerin sınıf dışında dersi video aracılığıyla öğrenip sınıf içi zamanı ise bireysel ya da gruplar şeklinde çeşitli etkinlikler yaparak değerlendirdiği bir sistem olarak tanımlabilir.

Toplam 6 hafta sürecek bu araştırmaya katılmayı kabul etmeniz durumunda, sizden aşağıdaki adımları gerçekleştirmeniz beklenecektir.

1. Microsoft Teams aracılığıyla size gönderilen videoları ders öncesinde izlemek ve gerekli alıştırmaları yaptıktan sonra sınıfa hazırlıklı gelmek.
2. Sınıfiçi aktivitelere katılmak ve dersin sonunda yazma ödevinizi araştırmacıya teslim etmek.
3. Araştırmanın başında ve sonunda olmak üzere her biri 50 dakika sürecek açık uçlu iki yazılı sınava girmek ve yaklaşık 250 kelimelik yazı (essay) yazmak.
4. Araştırma sonunda yaklaşık 30 dakikanızı alacak tersyüz sınıf ile ilgili deneyimlerinizi paylaşacağınız bir anket doldurmak.
5. Araştırma sonunda bir odak grup görüşmesine katılıp ters yüz sınıf deneyimleriniz hakkında fikirlerinizi nedenleri ile birlikte açıklamak.

Araştırmaya katılımınız tamamen gönüllülük temelinde olmalıdır. Saha bilgileriniz tamamıyla gizli tutulup sadece araştırmaya ait veriler araştırmacılar tarafından değerlendirilecektir.

Katılımcılardan elde edilecek bilgiler toplu halde değerlendirilecek ve bilimsel yayımlarda kullanılacaktır. Sağladığınız veriler gönüllü katılım formlarında toplanan kimlik bilgileri ile kesinlikle eşleştirilmeyecektir. Çalışma genel olarak kişisel rahatsızlık verecek sorular yada uygulamalar içermemektedir. Ancak, katılım sırasında sorulardan ya da herhangi başka bir nedenden ötürü kendinizi rahatsız hissederseniz çıkmakta serbestsiniz. Böyle bir durumda araştırmacıya haber vermeniz yeterli olacaktır. Çalışma sonunda, bu araştırmayla ilgili sorularınız cevaplanacaktır.

Yukarıdaki bilgileri okudum ve bu çalışmaya tamamen gönüllü olarak katılıyorum.

İsim -Soyisim Tarih: İmza

APPENDIX F: NON-PARAMETRIC TEST RESULTS

Mann Whitney U Test for Pre-test Scores for the Experimental and Control Groups

	Group	Mean Rank	Sum of Ranks	Asymp. Sig.(2-tailed)
Pre-test	Experimental	19.50	390.00	.578
	Control	21.50	430.00	

Wilcoxon Signed-Rank Test Results for Comparison: Pre-Test and Post-Test Scores of the Control Group

		N	Mean Rank	Sum of Ranks	Asymp. Sig.(2-tailed)
Post-test_control – Pre-test_control	Negative Ranks	0	.00	.00	.014*
	Positive Ranks	6	3.50	21.00	
	Ties	14			
	Total	20			

Wilcoxon Signed-Rank Test Results for Comparision:Pre-Test and Post-Test Scores of the Experimental Group

		N	Mean Rank	Sum of Ranks	Asymp. Sig.(2-tailed)
Post-test _experimental – Pre-test_experimental	Negative Ranks	0	.00	.00	.000*
	Positive Ranks	13	7.00	91.00	
	Ties	7			
	Total	20			

Mann Whitney U Test for Post-test Results Regarding CAF Indices

	Group	Mean Rank	Sum of Ranks	Asymp. Sig.(2-tailed)
C/T	Experimental	20.73	414.50	.903
	Control	20.28	405.50	
D/C	Experimental	21.43	428.50	.616
	Control	19.58	391.50	
EFC/C	Experimental	20.20	404.00	.871
	Control	20.80	416.00	
EFT/T	Experimental	21.60	432.00	.551
	Control	19.40	388.00	
AW/T	Experimental	19.93	398.50	.756
	Control	21.08	421.50	
AT/T	Experimental	20.00	400.00	.786
	Control	21.00	420.00	

Wilcoxon Signed-Rank Test Results for Comparision:Pre-Test and Post-Test Scores of the Experimental Group regarding CAF Indices

		N	Mean Rank	Sum of Ranks	Asymp. Sig.(2-tailed)
C/T	Negative Ranks	13	10.69	139.00	.204
	Positive Ranks	7	10.14	71.00	
	Ties	0			
	Total	20			
D/C	Negative Ranks	16	10.34	165.50	.240
	Positive Ranks	4	11.13	44.50	
	Ties	0			
	Total	20			
EFC/C	Negative Ranks	5	6.10	30.50	.017*
	Positive Ranks	13	10.81	140.50	
	Ties	2			
	Total	20			
EFT/T	Negative Ranks	5	7.90	39.50	.014*
	Positive Ranks	15	11.37	170.50	
	Ties	0			

	Total	20			
AW/T	Negative Ranks	9	12.33	111.00	.823
	Positive Ranks	11	9.00	99.00	
	Ties	0			
	Total	20			
AT/T	Negative Ranks	10	10.30	103.00	.940
	Positive Ranks	10	10.70	107.00	
	Ties	0			
	Total	20			

APPENDIX G: PEER REVIEW WORKSHEET

Peer Review Worksheet

Date: 03/05/2024

Writer:

Peer Editor:

Title: Cause - Effect Essay

1. Reread the introduction. Write a question or comment that will help the writer provide more information about the topic.

Definition is clear and after that you mentioned Turkey, which is a good strategy to connect the ideas. You could have written one more sentence to elaborate the idea you talk about.

2. Underline the thesis statement. Paraphrase the writer's opinion. (Write what you think the writer believes.) If it is unclear, write a question to help the writer focus.

There are three main reasons and three crucial effects of high population in Turkey. It is quite clear. There is no problem.

3. Are all the body paragraphs clearly supported with facts, examples and logical arguments? Write a question or suggestion to help the writer add, cut, move, or revise sentences for clarity.

In both body paragraphs, there are a few mistakes but they are ignorable. Your connective words such as conjunctions can be more diverse. But the topic, organization and grammar are fairly well.

APPENDIX H: LESSON PLAN FOR OPINION ESSAY (FLIPPED WRITING CLASSROOM)

Lesson Title: Crafting an Opinion Essay: Supporting Viewpoints with Logical Arguments and Evidence

Level: Intermediate EFL Students

Duration: 90 minutes (in-class session) + out-of-class activities

Lesson Focus: Writing an Opinion Essay

Learning Objectives:

By the end of this lesson, students will be able to:

1. Understand the structure and components of an opinion essay.
2. Develop a clear thesis statement that presents their viewpoint.
3. Support their viewpoint with logical arguments and relevant evidence.
4. Revise their cause-effect essay drafts based on peer and instructor feedback.
5. Apply critical thinking and planning skills to outline their opinion essays

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Out-of-Class Activities (Before Class)

1. **Revise First Draft of Cause-Effect Essay:**
    - Students will review their initial drafts of the cause-effect essay, focusing on the feedback received in the previous class. They will make necessary revisions in terms of content, organization, and language use.
    - **Time Required:** 30–40 minutes
2. **Watch Video and Study PPT on Opinion Essays:**
    - **Resources:**
        - YouTube video: “How to Write an Opinion Essay: Structure and Techniques”
        - PPT file: “Opinion Essay Writing” (provided through Microsoft Teams)
    - **Activity:**
        - Students will watch the video and take notes on the essential components of an opinion essay, such as introduction, thesis

statement, body paragraphs with supporting evidence, and conclusion.

- They will also go through the provided PPT to reinforce understanding of the essay structure and language features.

- **Time Required:** 20–30 minutes

3. **Planning with an Outline:**
   - **Activity:**
     - Students will draft an outline for their opinion essay based on a given prompt. They should identify their viewpoint, main arguments, and supporting evidence for each body paragraph.
     - The outline will be submitted before class for initial review.
   - **Time Required:** 20–30 minutes

In-Class Activities (90 Minutes)

1. Welcome and Quick Check-In (10 minutes)
- Greet students and briefly review the key points from the video and PPT.
- Address any questions or uncertainties they had while watching the video or working on their cause-effect essay revisions.

2. Feedback on Cause-Effect Essay Drafts (15 minutes)
- Provide students with structured feedback on their revised cause-effect essays (peer or instructor feedback)

3. Brief Review and Q&A on Opinion Essay Structure (15 minutes)
- Review the structure of an opinion essay (introduction, thesis statement, body paragraphs, and conclusion).
- Address common issues such as crafting a strong thesis statement, transitioning between ideas, and using persuasive language.

4. Writing Practice (30 minutes)
- **Activity: Drafting the First Paragraph**
  - Have students write the introduction paragraph of their opinion essays, focusing on:
    - Hook sentence
    - Background information
    - Clear and concise thesis statement presenting their opinion
- **Activity: Peer Review and Discussion**

- Pair students and have them share their introduction paragraphs. Students will provide feedback using a checklist (e.g., Does the thesis statement clearly state the writer's opinion?).
- After feedback, students can revise their introductions based on peer suggestions.

5. Planning and Outlining (15 minutes)

- Discuss students' submitted outlines and provide additional guidance on refining their arguments and evidence.
- If time permits, students can begin drafting the body paragraphs of their essays in class.

6. Closing and Assignment (5 minutes)

- Summarize the key takeaways from the class.
- **Homework Assignment:**
  - Students will complete the first draft of their opinion essays at home and submit it through the course management system before the next class.

Materials and Resources:

- Video: "How to Write an Opinion Essay" (YouTube link)
- PPT: "Opinion Essay Writing" (available on Microsoft Teams)
- Opinion Essay Outline Template (provided as a handout)
- Peer Feedback Checklist (for in-class feedback session)