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A Study on Self-Regulated Learning in a Flipped Classroom Model of EFL Writing Instruction

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Abstract

This study explores the effect of flipped classroom on the self-regulation of learners in the Academic Writing Skills course at a state university in Turkey. The intervention lasted ten weeks within one academic term. Participants in the study were sophomores assigned to experimental (n=25) and control (n=26) groups. The study adopted a pre-test and post-test quasi-experimental design, wherein the control group was taught in a traditional method while the experimental group received flipped instruction. Writing Strategies for Self-Regulated Learning Questionnaire was adapted to apply in a different cultural context (Turkey), and the data from a sample (n=430) were analysed using confirmatory factor analysis. As pre- and post-tests, the adapted version of the questionnaire was conducted for both groups. The findings revealed that the experimental and the control groups significantly differed from each other in overall writing self-regulation favouring the experimental group. Relevant implications are discussed.

Keywords: Academic writing, flipped classroom, self-regulation, student-centred learning.

İngilizce Yazma Öğretiminin Ters Yüz Bir Sınıf Modelinde Öz-Düzenlemeli Öğrenme Üzerine Bir Araştırma

Öz

Bu çalışma, Türkiye'de bir devlet üniversitesindeki Akademik Yazma Becerileri dersinde ters yüz sınıf yaklaşımının öğrencilerin yazma öz düzenlemelerine etkisini araştırmaktadır. Ters yüz eğitimi bir akademik dönem içinde on hafta boyunca sürmüştür. Araştırma katılımcıları, deney (n=25) ve kontrol (n=26) gruplarına atanan ikinci sınıf öğrencileridir. Ön test ve son test yarı deneysel desenin uygulandığı bu çalışmada, deney grubuna ters yüz öğretim, kontrol grubuna ise geleneksel yöntemle öğretim uygulanmıştır. Öz-düzenlemeli Öğrenme için Yazma Stratejileri Anketi farklı bir kültürel bağlamda (Türkiye) uygulanmak üzere uyarlanmıştır ve bir örneklemden (n=430) alınan veriler doğrulayıcı faktör analizi kullanılarak analiz edilmiştir. Anketin uyarlanmış hali her iki gruba ön ve son test olarak uygulanmıştır. Sonuçlar, İngilizce yazmadaki bütün olarak öz-düzenlemede deney ve kontrol gruplarının anlamlı bir şekilde birbirlerinden farklılaştıklarını ve bunun deney grubu lehine olduğunu göstermiştir. İlgili çıkarımlar tartışılmıştır.

Anahtar kelimeler: Akademik yazma, öğrenci-merkezli öğrenme, öz-düzenleme, ters yüz sınıf.

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INTRODUCTION

Writing is one of the most challenging skills incorporating many component sub-skills for students to acquire. Specifically, the students in higher education have difficulties and experience failure in academic writing courses (Al Mubarak, 2017; Cakir, 2010; Lee & Tajino, 2008; Mwangi, 2017). Students who are enrolled in English-medium departments in particular are expected to master English language skills and to expand these skills in order to be successful in their disciplines. Academic writing is a distinctive style of writing that requires a certain skill to demonstrate, interpret and present knowledge with a specialized way of thinking, mastery of academic conventions, and even some experience. Many of the students are unable to cope with the difficulties that they face when they begin to study in their majors. In this sense, the gap between the instructions in high schools and universities may complicate students as the terminologies, genres, argument, process, and audience are quite different, and most of them do not have a clear idea of what an academic writing looks like (Crank, 2012). According to Dong (1997), academic writing is a field with a set of new rules and needs to be acted upon according to these rules, which may change according to the audience addressed and the aims across different fields. For non-native students, how similar these writing difficulties are to the expectations expected of them in their educational settings increases these challenges. Kellogg and Raulerson (2007) state that teachers should train students at the university level rather than only instructing them. For effective writing, mechanics of writing such as punctuation, structure, spelling, coherence, and cohesion within the paragraph, and organized structure of texts are required, but more should be employed. More to do is related to the efficient use of knowledge which enables the practice of writing by providing appropriate conditions after the transfer of knowledge.

To attain mastery in a specific field, Zimmerman (2006) proposes the steps including individual effort, attentiveness, and practice in particular. Practice matters in teaching writing as it triggers skill development and academic performance. In order to promote practice in writing courses, student-centred teaching is crucial because it facilitates a learning setting in which students get involved more and take more responsibilities during the learning process. In order for teachers to create such a learning environment, it is essential that they abandon the existing teacher-centred instruction and adopt student-centred approaches. Considering that technology is an important part of education, a large number of studies show that the use of technology with the approaches based on constructivism, student-centred learning, and feedback contributes to learning outcomes (McNaught et al., 2012; Lai & Bower, 2020; López-Pérez et al., 2013; Wekerle et al., 2022). In this sense, flipped classroom approach is an option to create educational settings including more student-centred activities and active learning. Flipped classroom makes time in class to apply student-centred tasks fostering collaboration among students (Caudill, 2014). Class time may be utilized for the exercises that enhance interaction through which the students can use their newly-learnt concepts with the help of their teacher. In-class activities in flipped classrooms embody features that help to be engaged in and incorporate the material into their own pre-existing knowledge with the assist of peers and the teacher. As a result, rather than being a standard classroom, it may be more participatory, dialogue-based, dynamic, and autonomous for students (Talbert, 2012).

Flipped classroom or inverted classroom is a pedagogical method in which asynchronous videos transmitting knowledge are delivered to students outside the class and more practice and high order skills such as analysing, synthesising and even evaluating processes are conducted in-class time. Flipped classroom is simply defined as follows: “Inverting the classroom means that events that have traditionally taken place inside the classroom now take place outside the classroom and vice versa” (Lage et al., 2000, p. 32). It is stated that this definition does not sufficiently relate to what researchers describe as flipped classroom and propose a more comprehensive definition regarding to flipped classroom: “interactive group learning activities inside the classroom, and direct computer-based individual instruction outside the classroom” (Bishop & Verleger, 2013, p. 5). Here, the most important point related to the flipped classroom approach is, contrary to expectation, not the power of instructional videos on their own, but how effectively the class time is used by teachers within an overall approach (Tucker, 2012). Bergmann, one of the prime movers of flipped classroom approach, highlights that the most beneficial point of a flipped classroom is to reach each student individually in every in-class meeting. He states that interaction in a traditional classroom is reverted as well when teachers adopt a flipped classroom model because he asserts he has an opportunity to interact with the students who are struggling in real but pretend to comprehend the content or stay back from asking questions to clarify their minds (Tucker, 2012).

The flipped classroom is based on a set of assumptions about how learning becomes more effective. Students are expected to use online resources to attain information about the content before coming to class. Use of instructional tools before class like textbooks assigned to the students as homework is not new, but through pre-

recorded videos, the process becomes more motivating and effective for students, especially for slow learners, as they have the opportunity to learn the course materials given at their own pace and review unclear points as often as they do (Mok, 2014; Yang & Chen, 2020). Zappe et al. (2009) report that students are reluctant to watch one-hour-long videos and prefer the videos to be short somehow.

Bishop and Verleger (2013) emphasize that flipped classroom draws upon student-centred learning theories of Piaget (1926) and Vygotsky (1978), which entail interaction concerning cognitive conflict and zone of proximal development. Damon (1984) compounds the perspectives of both Piaget and Vygotsky proposing an educational framework derived from peer cooperation. He states that providing feedback for each other and discussion motivate peers to find better solutions; through peer communication, a child is able to join socially interactive processes, such as involvement and debate, and cognitive ones in which they desire to confirm and critically think of concepts. Cooperation and interaction between peers can facilitate discovery learning and creative thinking, which lead to idea generation. A similar framework can be applied during in-class sessions of flipped classroom models as they allow students to get more feedback and clarification from their peers or teachers in a learning environment where most of the class time is dedicated to cooperative learning.

Student-centred learning approach to teaching academic writing can promote the improvement in self-regulatory behaviours of students in writing, which is an essential attribution, as being a skilful writer is positively correlated to high level of self-regulation with the processes of self-planning, self-initiating, and self-sustaining (Zimmerman & Kitsantas, 2007). Self-regulation refers to an overarching term that includes cognition, metacognition, motivation and social behaviour. In Dornyei's description, self-regulation is depicted as a multifaceted construct by which people can actively mediate their own learning (2005). Zimmerman (1986) states that regarding self-regulated learning various definitions have been provided by researchers based on their theoretical approaches, and under a broader definition, self-regulated learners control their learning metacognitively, motivationally, and behaviourally. The emphasis in Bandura's sociocognitive theory is on the fact that human behaviour and learning take place in social environments (Schunk & Usher, 2012). Dinsmore et al. (2012) point out that self-regulation highlights reciprocal interaction of the environment with people, influenced by behaviour, and thus the environmental or contextual factors are vital for self-regulation processes. Pintrich (2004) highlights that contextual control is a crucial part of regulatory processes, but in traditional classrooms it seems to be difficult to take control over the learning environment for students due to the dominant role of the teachers. Instead, student-centred learning environments can make room for students to work or perform a task collaboratively and cooperatively, which can create opportunities for receiving more feedback and peer learning.

In the literature, the studies focusing on flipped classroom approach display similarity in their research settings such as foreign language teaching, social sciences, health science, and science (Chen et al., 2017; Dehghanzadeh & Jafaraghaee, 2018; Van Vliet et al., 2015; Wilson, 2013). Most of these studies have aimed to investigate the effect of flipped classroom approach on academic achievement (Baepler et al., 2014; Chen Hsieh et al., 2017; McCallum et al., 2015; Moravec et al., 2010; Oznacar et al., 2019; Zappe et al., 2009).

There are a number of studies revealing the effect of flipped instruction on students' success across different fields in Turkey (Acarol, 2019; Alsancak Sirakaya & Ozdemir, 2018; Cakir & Yaman, 2018; Cetinkaya, 2017; Ekmekci, 2017; Saglam & Arslan, 2018; Sezer, 2017). Despite its positive effects on academic success, there are several studies revealing no significant effect on academic achievement as well. For example, Cabi (2018) found out there was no significant difference between the scores of control and experimental groups in a study conducted. The results of the study indicated that flipped classroom model did not show any significant effect on improving students' academic achievement. Similarly, Caliskan (2020) reported that experimental and control groups did not differ from each other in their post-test scores. Flipped classroom approach has drawn a considerable attention from scholars, and many have focused on the academic success while a few have revealed its effect on increasing motivation, enhancing self-efficacy, advantages, challenges, and effectiveness of the method. There have been several studies investigating the effect of flipped classrooms on self-regulated learning (Altas & Mede, 2020; Kustandi et al., 2020; Ozturk & Cakiroglu, 2021; Robbins et al., 2020); however, there is a single study among them that has focused on the effect of the flipped classroom models on self-regulated learning in writing courses. In the study (Altas & Mede, 2020), a scale consisting of two parts as self-regulated learning skills/ strategies and motivational dimension was used to collect data. The study revealed no significant effect of flipped classroom upon self-regulated learning in writing. The current study aims to explore the effect of flipped classrooms on writing self-regulation with a scale involving more comprehensive dimensions as cognitive, metacognitive, social behavioural, and motivational regulation. Considering that self-regulatory skills are crucial to school success and adjustment processes because it facilitates students to control their attention and behaviour at schools (Blair, 2002),

there is a gap in the literature regarding the effect of flipped classroom approach on writing self-regulation. Hence, this study aims to address the following questions:

1. What is the effect of flipped learning approach on EFL learners' writing self- regulation?
2. Is there a significant difference between the experimental group instructed through the flipped classroom and the control group taught in traditional method in terms of writing self-regulation?

METHOD

Research Design

This study employed a pretest-posttest quasi-experimental design. It is quasi-experimental because the groups were selected without random assignment (Creswell & Creswell, 2018). The groups were randomly assigned into classes by the administrative unit in a higher education institution at the beginning of the term. In experimental designs, as Johnson and Christensen suggest (2010), one way is the use of or non-existence of a technique, wherein an experimental group is exposed to intervention, while the control group is not. In the current study, the experimental group was taught through flipped classroom intervention whereas the control group was instructed in traditional way where the whole content was delivered in class, and homework was assigned to students to be completed outside the class. Experimental studies aim to explore casual relations between dependent and independent variables; in this term, flipped classroom and traditional method in teaching academic writing are independent variables while self-regulated learning strategy use in writing is a dependent variable in this study. Before the flipped classroom intervention was implemented, Writing Strategies for Self-Regulated Learning Questionnaire was delivered as a pre-test to both the experimental and the control groups. After the intervention process was completed, the scale was applied as a post-test to both groups.

Participants

The participants of the study consisted of fifty-one (n= 51) sophomores enrolled in English-medium departments at a state university in Turkey and took Academic Writing Skills as a compulsory course in the academic year of 2019-2020. The course is a three-hour course per week and lasts 14 weeks in one term. It is offered as Academic Writing Skills I and II in fall and spring terms respectively. Twenty-eight (n=28) students, three of whom did not attend the class during the fall term, compromised the experimental group while the control group included twenty-eight (n=28) students, two of whom did not attend the class during the fall term. There were 51 students in total, consisting of 25 in the experimental group and 26 in the control group. In the experimental group, there were 9 females (36%) and 16 males (64%); in the control group, there were 10 females (38.5%) and 16 males (61.5%). The average age of the experimental group was 22.3 (SD = 0.99), ranging from 21 to 26 whereas the average age of the control group was 22.2 (SD = 0.77), ranging from 21 to 25.

Table 1. Demographic Characteristics of the Groups

Group	Gender			
	Female		Male	
	N	%	N	%
Control	10	38.5	16	61.5
Experimental	9	36	16	64

Data Collection Tool

Data was collected by means of a 7-Likert-type scale titled Writing Strategies for Self-Regulated Learning Questionnaire (WSSRLQ) developed by Teng and Zhang (2016). WSSRLQ was chosen as an instrument to collect the data as it incorporated self-regulated learning strategies for L2 writing as a multifaceted construct in terms of cognition, metacognition, social behaviour, and motivational regulation (Zhou & Hiver, 2022). It is based on Zimmerman's (1989) conceptualization of self-regulated learning as a dynamic, multifaceted process in which learners are active agents who self-regulate their own learning. From this broader aspect, WSSRLQ conveys self-regulated learning as a high-order construct which includes 9 lower-order writing strategies belonging to cognitive, metacognitive, social behaviour, and motivational regulation aspects. Teng and Zhang (2016) reported Cronbach's alpha coefficient of the 9 strategies in self-regulated learning was higher than .70, showing a strong internal reliability for each dimension of WSSRLQ. After obtaining permission from its developers through contacting them and asking for their contest, WSSRLQ was adapted into the Turkish setting by taking necessary steps regarding reliability and validity processes. Firstly, it was translated into Turkish language by three experts, and then back translation into English language was done by three native speakers of Turkish language whose majors were English language teaching, translation and interpretation, and linguistics. The researcher compared the

original and back-translated versions of the scale and consulted experts in order not to have any ambiguity in the meanings of the items. Considering the suggestions, necessary revisions were made accordingly.

Confirmatory Factor Analysis

CFA is applied to test a factorial structure designed before and grounded on a theory (Byrne, 1998; Hoyle & Panter, 1993; Kline, 2011). The goal of CFA is to test the dimensionality of WSSRLQ in a new setting with different populations (DiStefano & Hess, 2005); to this end, CFA was conducted using SPSS 23.0 Inc package and SPSS AMOS 23.0. A pilot study was performed for the validity and reliability of WSSRLQ with 430 students. The participants consisted of the sophomores who took Academic Writing Skills in the academic term of 2019-2020. For one-factor structure of the Writing Strategies for Self-Regulated Learning Questionnaire, the CFA indicated a significant chi-square, $\chi 2$ (725, n = 430) = 1086.18, p = .00). Thus, other fit indices (NFI, TLI, CFI, and RMSEA) were checked. Based on maximum modification index, six pairs of error terms were covaried to improve the model fit. Fit indices for the revised model were found as follows: NFI= .87, TLI = .95, CFI= .95, GFI = .89, RMSEA = .034, indicating an acceptable fit. For the model fit index CFI, the acceptable values are .90 or above (Browne & Cudek, 1993), and for TLI, .85 or above indicates good fit (Carlback & Wong, 2018; Shadfar & Malekmuhammadi, 2013). Values for NFI .80 or above are acceptable (Hooper et al., 2013). The values between .05 and .08 for RMSEA are acceptable. The results between .00 and .05 reflect a good model fit (Hair, 2014). The reliability coefficient of WSSRLQ was found to be .93, indicating internal consistency (Cortina, 1993).

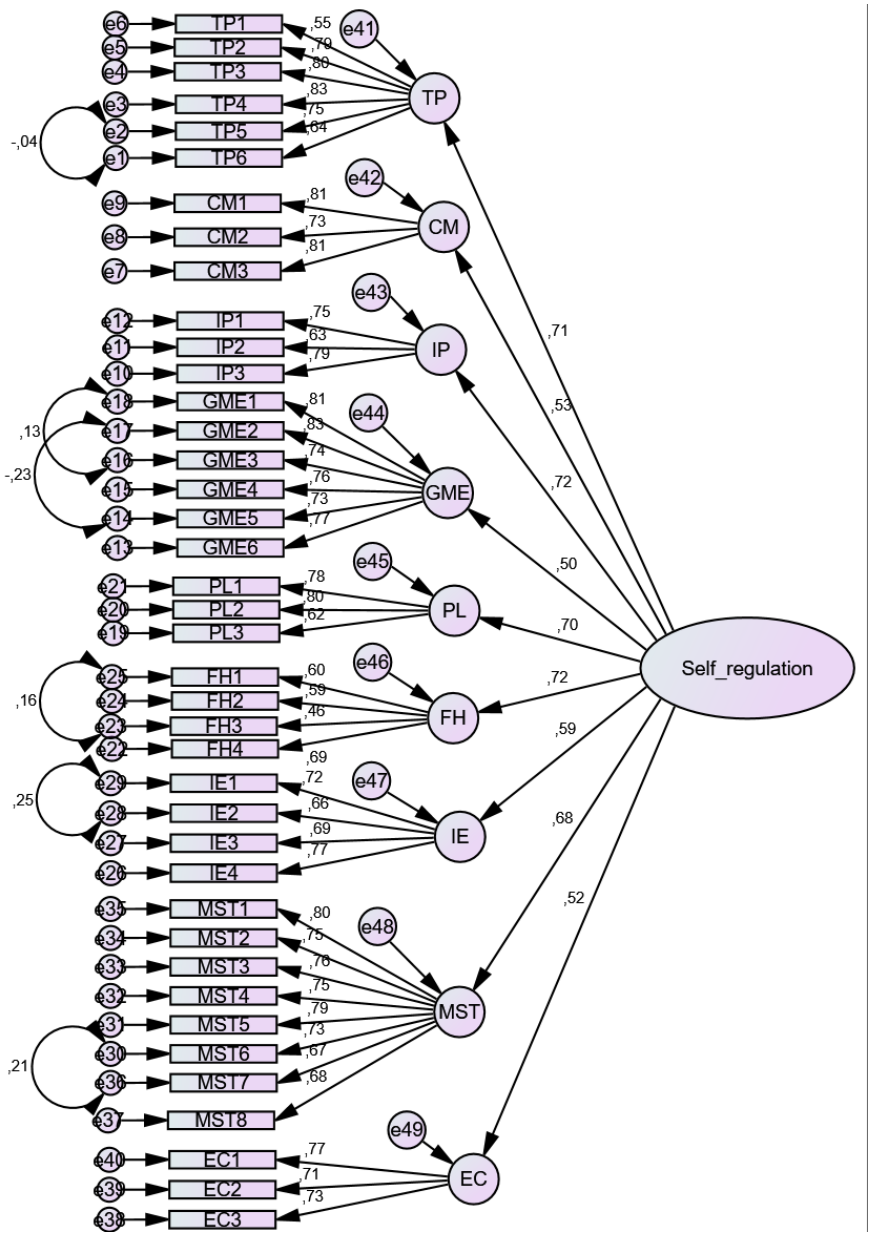

Figure 1. *One-factor second-order factor model of EFL writing strategies for self-regulated learning (N=430).* TP= Text processing; CM= Course memory; IP= Idea planning; GME= Goal-oriented monitoring; PL= Peer learning; FH= Feedback handling; IE= Interest enhancement; MST= Motivational self-talk; EC= Emotional control

Data Collection

The scale was delivered to the experimental and the control groups as pre- and post-tests. Flipped classroom design was employed in the experimental group through an average of 20 minute-video lessons created via one of the TechSmith software by the researcher, and shared via Edpuzzle, which is a video sharing platform assisting teachers to edit their videos and embed comprehension questions into videos when necessary. Edpuzzle videos included paragraph and essay writing, types, and examples. The intervention lasted 10 weeks in a 14-week academic term. The video contents were shared one week before each face-to-face class so that students could study them at their own pace and as often as they wished. Before the intervention, the participants in the experimental group were informed of the flipped classroom application, materials, and syllabus of the course. They watched an introductory video regarding the flipped class process. The control group was similarly informed about the materials, course content, and syllabus of the course, and was instructed by the traditional method during the term. After the introduction to the course, both groups were employed WSSRLQ as a pre-test at the beginning of the term.

Procedure

Both groups were taught the same contents and topics by doing the same activities and tasks. The experimental group completed assigned tasks in the class as the flipped classroom design required theoretically while the control group did the same tasks assigned outside the class. The content in the experimental group was delivered via average 20-minute-long video lessons prepared by the researcher outside the class one week before the class. Within the videos, several comprehension questions were embedded in order to check students' comprehension and help them to monitor their understanding and get engaged in the content recorded. When they came to class after watching the video lessons, the instructor made a 10 minute-class discussion on the misunderstood or misconceived points by the students while they were watching videos. After that, students were involved in the hands-on activities wherein more peer-to-peer and teacher-student interaction took place in the processes of brainstorming, generating ideas, outlining, drafting, second or final drafting after revision. In this sense, they received more feedback from their peers and teachers through social learning. The teacher had an active role by monitoring the discussions and scaffolding language learning with the help of grammar and vocabulary when they needed. At the end of the lesson, there was little to do with practice as homework outside the class. For the control group, the content of each week was lectured by the instructor directly through the traditional teacher-student question and answer technique in line with the syllabus of the course. The same questions which were embedded into videos watched by the experimental group were orally asked to the control group by means of teacher-led question and answer method during each class. After teaching content, brainstorming and outlining activities were conducted in pairs or individually. In most classes, drafting and second drafting were assigned as homework outside the class, and feedback and comments were provided in the following class meeting.

Data Analysis

Confirmatory Factor Analysis (CFA) was performed for WSSRLQ scale in order to test its factorial structure. The data obtained from WSSRLQ scale was analysed with descriptive statistical analysis. In addition, Multivariate Analysis of Variance (MANOVA), Paired Samples T-Test, Independent Samples T-Test were employed to examine the effect of flipped classrooms on self-regulated learning strategies in writing. SPSS 22.0 was used to analyse quantitative data based on the significance level of .05.

Research Ethics

Ethical considerations were taken into consideration during the research. The participants were informed about the research and the principle of voluntary participation. Consent forms from the voluntary participants were obtained. Personally-identifiable information from the participants were not collected, and coding was used in pre- and post-test data collection.

FINDINGS

Basic analysis of the data demonstrated the mean values of the 40 items varied from 3.85 to 5.30, and standard deviations went from .65 to 1.2. The skewness was between -.57 and .14, and the values for kurtosis were -1.3 and .03. According to the results of Shapiro-Wilk's test, one variable was significant; it might have been affected by sample size, however (Field, 2009). The fact that the values for skewness and kurtosis are between -1.5 and +1.5 indicates normally distributed data (Tabachnick & Fidell, 2013).

Independent Samples T-Test was used to explore if there was a significant difference between both groups before the flipped intervention. In Table 2, it is shown that there is no significant difference between both groups before intervention in overall scores of WSSRLQ.

Table 2. Independent Samples T-Test Results of Overall WSSRLQ Scale Before Intervention

	Pre	p
Experimental	4.28 ± .81	.732
Control	4.22 ± .33	

Multivariate Analysis of Variance (MANOVA) was utilized to investigate if two groups were significantly different with respect to subfactors of WSSRLQ before the flipped intervention. As Tabachnick and Fidell (2007) state, before MANOVA was conducted, the assumptions of homogeneity of variance and homogeneity of covariance were checked. Levene's test was conducted for homogeneity of variance. The test results showed error variance of the dependent variables were equal across groups ($p > .05$). In terms of homogeneity of covariance, the result of Box's M test indicates that covariance matrices are equal (Box's M= 74.54, p=.07).

Subfactors of WSSRLQ scale were examined through MANOVA showing that no significance with low effect size between the groups occurred before the intervention, $F(9,41)$ =.488, p=.874; Wilk's Λ=0.903, partialη^2=.097. Table 3 shows the results of MANOVA regarding the subfactors of WSSRLQ scale of the groups before intervention.

Table 3. Multivariate Analysis of Variance for the Results of Subfactors of WSSRLQ Scale Before Intervention

	Group	N	Mean	SD	p
TP	Experimental	25	4.86	.93	.887
	Control	26	4.90	.86	
CM	Experimental	25	4.19	.83	.912
	Control	26	4.16	.87	
IP	Experimental	25	4.27	.86	.830
	Control	26	4.32	.81	
GME	Experimental	25	4.32	.99	.785
	Control	26	4.25	.82	
PL	Experimental	25	3.91	1.06	.344
	Control	26	3.67	.88	
FH	Experimental	25	4.01	1.10	.720
	Control	26	4.10	.76	
IE	Experimental	25	4.10	1.11	.112
	Control	26	3.64	.91	
MST	Experimental	25	4.45	.89	.969
	Control	26	4.44	.91	
EC	Experimental	25	4.46	.96	.925
	Control	26	4.48	.89	

TP= Text processing; CM= Course memory; IP= Idea planning; GME= Goal-oriented monitoring; PL= Peer learning; FH= Feedback handling; IE= Interest enhancement; MST= Motivational self-talk; EC= Emotional control

Independent Samples T-Test was conducted to reveal whether both groups significantly differed from each other after the flipped intervention. Table 4 indicates that the experimental and control groups had a significant difference regarding the overall scores of WSSRLQ Scale after the intervention.

Table 4. Independent Samples T-Test Results of Overall WSSRLQ Scale After Intervention

	Post	p
Experimental	4.79 ± .36	.000
Control	4.29 ± .23	

MANOVA was run to investigate if these two groups significantly differed from each other regarding subfactors of WSSRLQ after the flipped intervention. For homogeneity of variance, Levene's test showed error variance of the dependent variable was equal in both groups ($p > .05$). Regarding homogeneity of covariance, the result of Box's M test indicates that covariance matrices are equal (Box's M= 76.63, p=.052).

The results of MANOVA showed the groups significantly differed from each other after the intervention with robust effect size, $F(9,41) = 4.242$, p=.001; Wilk's Λ=0.518, partialη^2=.48. As it is seen in Table 5, the post-test scores of self-regulated strategies in writing of experimental group increased in Text Processing, Course Memory, Idea Planning, Goal Monitoring and Evaluation, Peer Learning, and Feedback Handling. However, there was no significant difference between the groups in Interest Enhancement, Motivational Self-Talk, and Emotional Control.

Table 5. Multivariate Analysis of Variance for the Results of WSSRLQ Scale After Intervention

	Group	N	Mean	SD	p
TP	Experimental	25	5.30	.77	.024
	Control	26	4.84	.62	
CM	Experimental	25	4.74	.68	.027
	Control	26	4.25	.87	
IP	Experimental	25	4.96	.66	.000
	Control	26	4.23	.81	
GME	Experimental	25	5.00	.70	.002
	Control	26	4.25	.73	
PL	Experimental	25	4.54	.75	.002
	Control	26	3.91	.85	
FH	Experimental	25	4.59	.84	.022
	Control	26	4.00	.92	
IE	Experimental	25	4.28	.59	.085
	Control	26	3.94	.74	
MST	Experimental	25	4.82	.71	.469
	Control	26	4.67	.72	
EC	Experimental	25	4.71	.79	.567
	Control	26	4.59	.67	

TP= Text processing; CM= Course memory; IP= Idea planning; GME= Goal-oriented monitoring; PL= Peer learning; FH= Feedback handling; IE= Interest enhancement; MST= Motivational self-talk; EC= Emotional control

Paired Samples T-Test was conducted within groups so as to explore if there was a significant increase between pre-test and post-test scores of overall and subfactors of WSSRLQ scale. The results showed that the experimental group significantly increased the scores of overall and all subfactors except Interest Enhancement, Motivational Self-Talk, and Emotional Control whereas the control group's overall and subfactors' scores did not differ significantly as displayed in Table 6.

Table 6. Paired Samples T-Test Results of WSSRLQ Scale between the Groups

	Experimental			Control		
	Pre	Post	p	Pre	Post	p
TP	4.86 ± .93	5.30 ± .77	.000	4.90 ± .86	4.84 ± .62	.794
CM	4.19 ± .83	4.74 ± .68	.000	4.16 ± .87	4.25 ± .85	.712
IP	4.27 ± .86	4.96 ± .66	.000	4.32 ± .81	4.23 ± .67	.517
GME	4.32 ± .99	5.00 ± .70	.000	4.25 ± .82	4.35 ± .73	.421
PL	3.91 ± 1.06	4.54 ± .75	.000	3.65 ± .88	3.81 ± .85	.284
FH	4.01 ± 1.10	4.59 ± .84	.000	4.10 ± .76	4.00 ± .92	.339
IE	4.10 ± 1.11	4.28 ± .59	.373	3.64 ± .91	3.94 ± .74	.080
MST	4.45 ± .89	4.82 ± .71	.084	4.44 ± .91	4.67 ± .72	.095
EC	4.46 ± .96	4.71 ± .79	.111	4.48 ± .89	4.59 ± .67	.583
Overall	4.28 ± .81	4.79 ± .36	.000	4.22 ± .33	4.29 ± 23	.287

TP= Text processing; CM= Course memory; IP= Idea planning; GME= Goal-oriented monitoring; PL= Peer learning; FH= Feedback handling; IE= Interest enhancement; MST= Motivational self-talk; EC= Emotional control

DISCUSSION & CONCLUSION

The current study aimed to examine whether there was an effect of flipped classroom approach on EFL learners' writing self- regulation, if there were, whether there was a significant difference between the experimental group instructed via the flipped classroom and the control group taught in traditional method in terms of writing self-regulation. Regarding the first question, the findings revealed a positive effect of flipped classroom upon students' writing self-regulation since the means of post-test scores were greater than those of pre-test scores of the experimental group in writing self-regulation. The second research question was to explore whether the experimental and control groups significantly differed from each other with respect to their writing self-regulation. The results indicated there was an overall significant difference between the groups regarding their pre-test and post-test scores of writing self-regulation. The scale had four dimensions including nine subdimensions as cognitive (text processing, memory strategies), metacognitive (idea planning, goal-oriented monitoring and evaluation strategies), social behaviour (feedback handling, peer learning), and motivational regulation (motivational self-talk, interest enhancement, emotional control). The experimental and control groups significantly differed from each other in three dimensions of the WSSRLQ except motivational regulation dimension although an increase in the post-test scores was observed. The results attained in this study tie well with the previous studies wherein the positive effect of the flipped classroom on self-regulation across different contexts was observed. To illustrate, Jdaitawi (2019) aimed to investigate the effects of the flipped classroom approach to preparatory year instruction on students' self-regulation, and the results of the study showed the experimental group had a significantly higher level of self-regulation than the control group did. Likewise, Zarouk et al. (2020) suggested that problem-based learning activities in the flipped classroom improved cognitive and metacognitive abilities both in solitary and group work. Another research similarly showed flipped classrooms improved high school students' metacognitive learning strategies (Al-Abdullatif, 2020). On the other hand, Altas and Mede (2020) in their study reported no significant effect of flipped classroom approach on self-regulated learning in writing skills.

In the current study, the significant increase in the experimental group's cognitive, metacognitive, and social behaviour regulations in the academic writing course may be attributed to some conditions brought about the flipped classroom. Firstly, with respect to cognitive regulation, Jensen et al. (2018) in their study reported video lessons offered advantages over other types of content materials such as textbook style readings. As students were able to watch videos at their own pace, pause, and rewind (Battaglia & Kaya, 2015), it was found out that flipped classrooms could help students to regulate their learning cognitively. Similarly, Bishop and Verleger (2013) highlighted the importance of video lectures for out-of-class as a criterion of the flipped classroom. In the same vein, Smith (2013) stated the use of video lectures would be a better choice since students' preference was streaming content as an out-of-class activity. In the same way, In Battaglia and Kaya's study (2015), it was found that students mostly favoured seeing videos over reading materials outside the class. Secondly, in line with the previous studies, this study has shown flipped classrooms improved students' metacognitive regulation in learning (Kansizoglu & Comert, 2021; Limueco & Prudente, 2019; Van Vliet et al., 2015). Limueco and Prudente (2019) in their study emphasized that flipped classroom provided a learning environment in which metacognition would be promoted with the help of video lessons and embedded questions into them wherein they could learn at their own pace and monitor their own learning. In addition, through the pre-class content provided for the students in flipped classrooms, they can monitor their learning since they have already familiarized with the in-class content and can evaluate their own processes while completing them with respect to difficulty. As can be seen in the previous studies, during the in-class sessions of flipped classrooms, immediate feedback coming from peers and teachers as more knowledgeable agents can facilitate students to both monitor and evaluate their learning with respect to what extent they comprehend, and a realization of any misunderstandings about a concept or subject. In this way, they can overcome this conflict through collaborative work. The study conducted by Pressley and Ghatala (1990) reported that students who scaffolded their peers as tutors were inclined to enhance their declarative and procedural knowledge, and as a result of this, they could develop their cognitive awareness. Considering social behavioural regulation, flipped classrooms offer various opportunities for students to work with their peers (Nederveld & Berge, 2015). In engagement and application processes in classes, students work with their peers to solve problems or complete projects. By the same token, Foldnes (2016) argued that flipped classes in which students answered questions with their peers and received instant feedback from each other promoted peer learning as a powerful tool for learning. In flipped classrooms, peer learning and collaborative work are supported by teachers as a facilitator who supports students, scaffolds them, monitors their progress, and encourages them to participate in group work actively (Du et al., 2014).

The lack of a significant effect of flipped classrooms upon students' motivational regulation including motivational self-talk, interest enhancement, emotional control was not expected in the study. Motivational regulation strategies with the other dimensions of self-regulation considerably relate to student engagement and academic achievement (Pintrich, 2004; Wolters et al., 2011). In the study, motivational regulation was measured under three-subdimensional clusters as motivational self-talk, interest enhancement, and emotional control. Regarding this study, it may be concluded that it seems to be unlikely to change a situation in which students are unmotivated and unwilling to be engaged in their learning tools, materials, and activities at first into a positive condition wherein students are quite satisfactorily delighted with the flipped class approach to writing to learn in terms of motivation within a respectively short period of time. In addition, a behavioural change may occur by enhancing and maintaining motivation for a longer time. On the basis of interest enhancement, task difficulty can be a factor that may result in students' inability to regulate their motivation. The tasks in the coursebook may not relate to students' real lives or they do not know how to deal with them owing to the lack of metamotivational knowledge that helps them to identify the reason why students do not regulate their own learning when they are faced with an irrelevant task. In this sense, Kryshko et al. (2020) suggest that students can approach an irrelevant or a difficult task as if it were a game or chunking activity involving breaking the task into smaller units so that they can have a feeling of success.

The main conclusion drawn from this study is the fact that flipped classrooms promote the improvement of self-regulation in academic writing overall despite not causing a significant difference between the groups in motivational regulation. However, based on the review of literature, there is still a gap on the effect of the flipped class on the improvement of self-regulation. More studies on the effectiveness of flipped classroom in language learning, teaching writing in particular, need to be conducted. This study based on the mean scores of motivational regulation in the experimental group demonstrates there is an increase after the flipped intervention, which may be a question for future research to investigate the effect of flipped classroom on motivational self-regulated learning strategies in writing classes with a more inclusive approach to other aspects within a longitudinal study. Designing a flipped instruction with a comprehensive focus on motivational learning strategies in writing classes can be another basis for future research.

Even though the results obtained from this study are promising, some limitations need to be highlighted. Teacher's increased workload due to the fact that creating the contents and materials via videos can be a primary reason for avoiding a flipped class design for their courses. Teachers can be trained and become more equipped with the application of flipped class models in their courses regarding the online applications, video making platforms, and tutorials in developing contents. Teachers can be assisted in this aspect, which may increase their motivation and involvement in online digital processes. Another concern related to the flipped class model was the students' disengagement in learning outside the classroom, which required the teacher to frequently motivate and encourage them to watch video lessons in time by tracking their progress throughout the videos. This drawback may be overcome by increasing their awareness of the effectives of videos in learning processes.

Statements of Publication Ethics

The authors declare that this study has no unethical behaviour with respect to publication ethics. The study is based on the first author's Ph.D. dissertation (in progress). Thus, this study was approved by the Ethics Commission of the higher education institution where the study was conducted in the academic term of 2019-2020 with the document number 35853172-101.02.02.

Researchers' Contribution Rate

The first author was involved in each stage of the study as it was based on the first author's Ph.D. dissertation (in progress). The second author, the supervisor of the dissertation, made contributions to the study with guidance, instruction and continuous feedback.

Conflict of Interest

The authors have no conflict of interest.

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