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Fostering Iranian EFL Learners 'Autonomy and Self-regulation through Flipped Classroom Model (FCM)

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Abstract

Introduction: The flipped classroom model (FCM) as an educational model has become increasingly popular in line with the development of more learner-centered approaches to learning. It enables learners to study in their locations far from the educational settings by using online tools and facilities. While the concept and practice have existed for more than 15 years, there has been little attempt to examine flipped instruction on Iranian learners' autonomy and self-regulation in EFL context.

Methodology: To bridge the literature gap, this study examined whether flipped instruction plays any role in Iranian EFL learners' autonomy and self-regulation or not. A pre-test, post-test design was used on 60 Iranian students at the university after assigning them into two groups of control and experimental. Also, the related questionnaires were administered before the study as a pre-test and after the instruction as a post-test.

Findings: The results showed the significant differences in experimental group after flipped instruction.

Conclusion: The outcomes of this research would be applicable for teachers to adopt the same pedagogical design in their classrooms to motivate the students to engage more in their own learning.

Keywords: Autonomy, flipped classroom model, self-regulation

Introduction

Recently, raising learner autonomy has become a central goal in the language learning field. Autonomy is learners' ability to take control of their learning process, set goals, make decisions, and monitor their progress independently (Benson, 2011). Language learners have their feelings about their process of language learning. It is what teachers generally believe about the learners' attitude that plays a significant role in the process of learning, specifically learning a second or a foreign language. Developing learner autonomy plays a vital role in the theory and practice of language

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teaching. The primary objective of this study was to investigate the effectiveness of flipped instruction on the autonomy of Iranian EFL learners, enabling them to take greater control over their learning processes. It also tried to evaluate self-regulation development. It analyzed the extent to which this instructional approach fosters self-regulation among learners, including their ability to plan, guide, and monitor their own language learning activities.

Language learning is a lifelong activity, not one that starts and ends in a language classroom. Helping learners improve their autonomous learning capacities can be fulfilled in various ways. As Çakici (2015) states, these different ways of learning are often known as learner training courses and may include awareness-raising, strategy training, scaffolding, enhanced social interaction, and reflection encouragement. Najeeb (2013) studied learner autonomy in language learning and stated that the concept of learner independence or learner autonomy moves into an area in which students can direct their learning. It means that learning activities occur without the immediate intervention of the teacher. Najeeb (2013) also states that in this condition, language learners set their goals and follow their devised strategies. This scenario facilitates the process of learning and helps learners become more effective when they study independently. Autonomous learners exhibit adaptability and flexibility in responding to diverse learning situations and challenges (Benson, 2001). By developing metacognitive strategies and problem-solving skills, autonomous learners can overcome obstacles, adjust their learning strategies, and seek out resources independently. Autonomy enables learners to tailor their learning experiences to their individual needs, interests, and learning styles, thereby optimizing their learning outcomes (Dam, 1995).

Fostering autonomy in language learning equips learners with valuable lifelong learning skills that extend beyond the classroom (Smith, 2003). Autonomous learners develop self-regulation skills, such as goal setting, time management, and self-evaluation, which are transferable to other domains of life. Moreover, autonomy cultivates learners' ability to engage critically with information, communicate effectively, and adapt to evolving linguistic and cultural contexts, preparing them to be successful in an increasingly globalized world (Benson, 2013). The Flipped Classroom Model (FCM) offers a promising approach to enhancing autonomy by redefining classroom dynamics, promoting active learning, and encouraging self-paced learning. Recent research suggests that the flipped classroom model has a positive impact on autonomy among EFL learners, leading to increased motivation, self-efficacy, and self-regulation skills. By integrating the FCM into EFL instruction, educators can empower learners to become autonomous, self-directed learners who are capable of achieving success in language learning and beyond (Bishop& Verleger, 2013; Brame, 2013; Chen & Wu, 2019; Mazur, 2009; Strayer, 2007). The second variable of this study was self-regulation which is a critical aspect of effective learning that encompasses the ability to plan, monitor, and assess one's own learning processes. In the context of EFL learning, self-regulation is particularly

important since it enables learners to take control of their language acquisition journey, leading to better outcomes and sustained motivation (Zimmerman, 2000). Self-regulation refers to the process by which individuals control their thoughts, emotions, and behaviors to achieve their goals (Zimmerman, 2000). It involves setting specific goals, employing strategies to reach these goals, monitoring progress, and adjusting behaviors and strategies as necessary (Schunk & Zimmerman, 2012).

The key components of self-regulation include ***goal setting,*** that is defining clear, achievable objectives; ***Strategic planning,*** which is developing plans and strategies to achieve these goals; ***Self-monitoring,*** Continuously tracking one's progress towards the goals; ***Self-evaluation,*** assessing the effectiveness of strategies and making adjustments, and ***Self-motivation,*** that is maintaining motivation and persistence in the face of challenges (Schunk & Zimmerman, 2012, p.23).

Self-regulation has a profound impact on learning outcomes. EFL learners who effectively self-regulate are more likely to achieve higher levels of language proficiency (Graham & Harris, 2015). By setting realistic goals and employing appropriate strategies, learners can optimize their study habits, focus on areas of weakness, and make consistent progress. This proactive approach leads to more efficient and effective language learning.

FCM is not a new concept. Assigning content and assignments for students to prepare in advance and preserving face-to-face (F2F) class time for other activities was once usual, even without online resources (Touchton, 2015). Technology is useful in introducing course content out of the classroom; therefore the content can be explored more deeply during class time (Strayer, 2012). According to Touchton (2015), flipped instruction represents a move towards dedicating class time to material discussion, and the proponents of flipped instruction recommend it for increasing learning outcomes.

The flipped classroom is identified by numerous names such as blended learning, the inverted classroom, and the flip (Bergmann & Sams, 2012). In FCM, the traditional teaching method of spending class time which was allocated to direct teaching and doing activities for homework is "flipped", which is students receive teaching contents at home, and class time is devoted to other important teaching activities. Flipped classroom is far more than a teaching method, which replaces Face-to-face lecture-based instruction with a format that offers students a chance to discuss, examine, and review materials with instructor in classroom (Hughes, 2012). According to Uzunboylu and Karagozlu (2015), the FCM could be considered as personalized learning, in which learners are responsible for their own learning. So it could cope with the most important problem of language learning in recent centuries which is lack of time.

Kim et al. (2014) considered prior exposure to content before receiving face-to-face instruction as a main part of the flipped instruction. FCM is related to the exposure of students to new content, which they could

examine and practice their skills; then, the learners practice their abilities and reiterate their knowledge during class time, for clarifying content and receiving feedback. Besides, the flipped classroom is composed of the exchange of traditional activities and events between face-to-face and online contexts (Kim et al., 2014). Although the FCM was traditionally considered as substituting traditional teaching with videos, for providing learners with more class time for more practice, this definition is now considered to be narrow (Bishop & Verleger, 2013; Uzunboylu & Karagozlu, 2015). This attitude presents the FCM as just a simple way of reordering classroom instruction and out-of-class work (Bishop and Verleger, 2013). On the other hand, flipped teaching has been considered as an instructional technique comprised of two key parts: direct (computer-based, individual instruction outside the class context), and interactive (group activities in the class context).

Generally, research has suggested that the flipped teaching strategy has a positive influence on learners' performance and proficiency levels in various areas, especially the English language. Based on Hung's (2015) finding, FCM in English classes improves learners' academic performance in general. But, unfortunately few research examined the effects of FCM on learners' autonomy and self-regulation especially in EFL contexts. So, to this end, the following research questions were examined:

١. Does the flipped instructional model plays any roles on learners' autonomy?
٢. Does the flipped instructional model plays any roles on learners' self-regulation?

The findings could refine theoretical models of language learning by highlighting the dynamic interplay between instructional methods and EFL learner characteristics. Furthermore, this study provided valuable insights for educators and curriculum designers aiming to improve EFL teaching and learning in the context of Iran. By revealing the effectiveness of ubiquitous, flipped instruction, the research can provid a compelling insight for adopting these approaches in language education. The findings could guide educators in designing more engaging and effective learning experiences in line with needs of EFL learners. Besides, the emphasis on learner autonomy and self-regulation aligns with contemporary educational goals, promoting lifelong learning skills that are crucial in the current era.

Literature Review:

Learner Autonomy

Autonomy involves learners taking responsibility for their learning, including setting goals, choosing resources, and evaluating progress independently. Autonomy in learning involves the capacity to take control of one's learning process (Holec, 1981). According to Benson (2011), autonomy encompasses several dimensions: technical (skills to manage one's learning), psychological (attitudes and motivation), and political

(power dynamics in the learning environment). The theoretical foundations of autonomy can be traced to constructivist theories of learning, which emphasize the active role of learners in constructing knowledge (Piaget, 1972; Vygotsky, 1978).

Constructivist theories argue that learners build understanding through experiences and interactions with their environment. Additionally, Deci and Ryan's (1985) Self-Determination Theory highlights the importance of autonomy as a fundamental human need, essential for motivation and psychological well-being. Benson (2013) indicated that autonomous learners tend to achieve higher levels of language proficiency. Autonomy allows learners to engage in extensive practice and exposure to the target language beyond the classroom setting. This continuous interaction with the language, whether through reading, writing, listening, or speaking, enhances their overall language skills and cultural understanding. One effective way to promote autonomy among EFL learners is through learner training and strategy instruction. Training learners to use various language learning strategies, such as note-taking, summarizing, and self-assessment, helps learners to manage their own learning (Chamot, 2005).

The integration of technology in EFL education offers significant opportunities for fostering autonomy. Online resources, language learning apps, and digital tools provide learners with access to a vast array of materials and interactive platforms that support independent learning (Reinders & White, 2016).

Self-Regulation

Self-Regulation, in broad terms, is viewed as "a process that involves efforts made by individuals to alter their own inner states and responses" (Baumeister and Vohs, 2007, p. 2). In social cognitive theory, self-regulation is defined as "being composed of several processes, which include goal setting, self-observation, self-judgment, and self-reaction. These processes are of equal importance, interact with one another, and allow individuals to exercise control over their thoughts, feelings, motivations, and actions" (Bandura, 1991, p. 249).

According to Zimmerman (2000), self-regulation is "the self-generated thoughts, feelings and actions that are planned and cyclically adapted to the attainment of personal goals" (p. 14). Pintrich (2000) defined this notion as "an active, constructive process whereby learners set goals for their learning, attempt to monitor, regulate and control their cognition, motivation, behavior, guided and constructed by their goals and contextual features in the environment" (p. 453). When self-regulation is applied to writing, Zimmerman and Kitsantas (2007) defined it as "the self-initiated thoughts, feelings, and actions that writers use to attain various literary goals, such as improving their writing skills as well as enhancing the quality

of the text they create" that are affected by motivational beliefs and the outcomes of self-regulatory efforts in a cyclical manner (p. 52).

When self-regulation applied to academic, or learning contexts it is named as Self-Regulated Learning (Cleary, Callan, and Zimmerman, 2012). As Dörnyei (2005) mentioned, Self-Regulated Learning (SRL) has allowed educational psychologists to establish a relationship between learning and other cognitive and motivational aspects of clinical, health, and educational psychology, which are not directly related to learning. Besides, self-regulation has attracted the attention of educational psychologists because of "its practical and theoretical value. Its practical value allows for the application of its principles to specific learning contexts, while its theoretical value empowers researchers to better understand the many different aspects that affect the learners' psychological functioning" (Baumeister and Vohs, 2007, p. 3).

Cleary, et al. (2012) conceptualized self-regulation as "a multidimensional process whereby individuals attempt to exert control over their cognition, motivation, behaviors, and environment to optimize learning and performance outcomes" (p. 1). This definition embodies the assumptions of many of the theoretical models of SRL proposed in the field of educational psychology and of the models of self-regulation in writing and SRL in the college classroom.

According to Pintrich (2004) and Wolters (2010), SRL depends on learners having the skill and will to learn. In other words, learners are assumed to have the abilities, attitudes, and beliefs that are needed to learn and be taught. Another assumption is that learners are active and proactive, participants of their own learning experiences rather than passive recipients of information from their surroundings (Wolters, 2010). It means that learners are considered to have the potential to construct meaning from the received information, and to regulate some, or all, aspects of their academic functioning, including cognition, motivation, behavior, and environment, at some times and in some contexts (Pintrich, 2004). A third assumption is that goals are an important tool for learners to assess their performance at different points and that learners can adopt different goals depending on the context. A fourth assumption is that SRL processes act as mediators between "personal and contextual characteristics and actual achievement and performance" (Pintrich, 2004, p. 388). A fifth assumption is that learning occurs in a continuum of interdependent stages that are cyclical in nature, which might correspond to the processes that learners use before, during, and after completing a particular task. The last assumption is that regulation can occur at any stage of performance simultaneously and dynamically, rather than in a strict hierarchical or time sequence (Pintrich, 2004; Wolters, 2010). That is to say, learners can regulate their performance before, during, and after completing a writing task.

The Flipped Classroom Model

This model was put forth by Socrates who stressed the importance of active dialogue in learning (Peterson, 2011). Students were expected to read before class and have discussions in class. Over centuries, the concept has been practiced but without being identified by a technical name. The method was successful and students learned a great deal from their classes. They were confident that the FCM had reduced the teaching frustrations as "it personalizes education, increases students-teacher and student-student interaction, and makes the classroom content transparent to parents and others" (Moran & Young, 2014). In 2011, Khan used the term "flipping the classroom" in his TED talk. Since then, interest in the flipped model has grown widely with new articles, press, and blogs on the flipped model appearing almost every day. This generated a brand-new perception of education.

At that time, a professional learning network was established for educators concerned with flipped education. In 2013, the network, which presented both pedagogical and best-practice consultation and discussions, had over 16,000 members all over the world (Overmyer, 2013). The flipped classroom can be defined as a teaching and learning approach where students first acquire knowledge outside of the classroom via lecture video and then apply that knowledge in activities that promote higher order complex thinking and problem-solving. To flip the classroom, the teacher provides lecture materials such as audio or video podcast instead of the in-class lecture (Bergmann et al., 2012). The teacher might either record their own videos or use whatever videos available on YouTube (Moroney, 2013). The role of the students is to watch the videos, listen to the audio, read the relevant texts, and use various study techniques before they enter the classroom. Inside the classroom, students participate in active learning activities (Ferreri, 2013; Freed, Bertram & McLaughlin, 2014) that help them apply the knowledge and develop higher-order thinking (Missildine et al., 2013).

There are many different models of a flipped classroom but not all methods of instruction are the same. As mentioned by Bergmann and Sams (2012, p.33), the pioneers of the flipped classroom, "There is no single way to flip your classroom – there is no such thing as the flipped classroom". However, for students to successfully engage in flipped learning, teachers must incorporate into their practice four pillars - "F-L-I-P" (Figure 1):

F: *Flexible Environment*
L: *Learning Culture*
I: *Intentional Content*
P: *Professional Educators* (Hamdan et al., 2013)

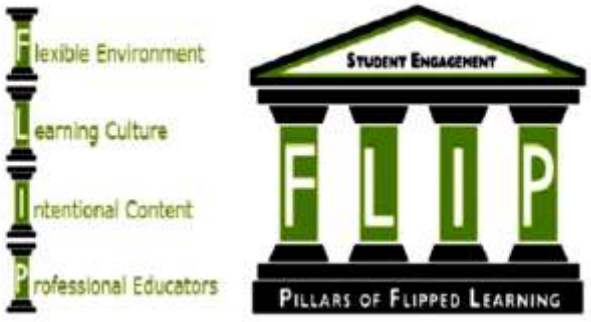

Figure 1. The four pillars of flipped learning (Hamdan et al., 2013)

Flexible learning environments allow students to learn in various styles and teachers to adapt their teaching methods. This approach encourages interactive and reflective learning in flexible classroom settings. Students have the freedom to choose how, when, and where they learn, and promote personalized learning experiences. Additionally, flipped classrooms offer more options for evaluating student progress and timelines, benefiting low-proficiency learners. In terms of *learning culture*, there's a shift from teacher-centered to student-centered approaches. In traditional settings, teachers are the primary source of information, while in flipped learning, they facilitate student-driven activities, fostering deeper understanding and skill development. Active learning in student-centered environments enhances knowledge transfer and proficiency levels. *Intentional content* refers to educators' decisions on what materials to teach F2F or via recorded lectures. Flipped educators optimize classroom time with various instructional methods, ensuring effective content delivery and student engagement. Teachers must carefully select content to promote deep learning and skill development, balancing direct instruction with interactive classroom activities. Lastly, *teachers* play a crucial role in flipped classrooms, guiding individualized learning, providing timely feedback, and facilitating mastery. Immediate feedback is essential for student progress, particularly in writing, where revision based on instructor feedback is crucial for mastery. Effective flipped learning relies on instructors capable of delivering timely and constructive feedback to students.

There are a number of empirical studies which have been conducted on the variables of this study.

Shafiee and Najafi (2021) investigated the impact of flipped instruction on student engagement and self-regulated learning in Iranian EFL classrooms. Using a mixed-methods approach, the study assessed the effectiveness of flipped instruction by comparing student engagement and self-regulated learning behaviors between a group of EFL learners exposed to flipped instruction and a control group receiving traditional instruction. In the flipped instruction group, students accessed instructional materials and resources outside of class, enabling in-class time to be dedicated to interactive activities and collaborative learning experiences. The findings revealed that flipped instruction significantly enhances student engagement and promotes self-regulated learning behaviors among Iranian EFL learners. Participants in the flipped instruction group demonstrate higher levels of active participation, motivation, and ownership of learning compared to those in the traditional instruction group. Additionally, they exhibit increased autonomy in managing their learning process, setting goals, and monitoring their progress. They argued that flipped instruction offers a promising approach to address the challenges of passive learning and teacher-centered instruction in EFL classrooms, fostering a more student-centered and interactive learning environment. Jafari and Ashrafi (2022)

examined how the flipped classroom model affects self-regulation among Iranian learners of EFL. This study focused on the ability of students to manage their learning processes, including goal setting, self-monitoring, and self-reflection. The research employed a quasi-experimental design with two groups: an experimental group that experiences flipped classroom instruction and a control group that receives traditional, lecture-based teaching. In the flipped classroom, students engaged with lecture materials and preparatory content outside of class, using online resources and digital tools. In-class time is then dedicated to collaborative activities, problem-solving, and interactive learning tasks. Results from the study revealed that students in the flipped classroom group exhibit significant improvements in various dimensions of self-regulation compared to their peers in the traditional classroom. These dimensions include enhanced goal-setting abilities, better time management, increased self-efficacy, and improved self-monitoring and evaluation of their learning progress.

Ahmadi and Sadeghi (2018) investigated the influence of ubiquitous learning tools on the autonomy of learners studying English. The study focused on how mobile and digital technologies, accessible anytime and anywhere, can promote self-directed learning among Iranian EFL students. The authors conducted a mixed-methods research design, combining quantitative surveys and qualitative interviews to gather data from EFL learners who utilized various ubiquitous learning tools, such as language learning apps, online resources, and virtual learning environments. The study aimed to assess the extent to which these tools contributed to the development of learner autonomy, defined by the learners' ability to set learning goals, choose appropriate learning strategies, and evaluate their progress independently.

The results revealed that ubiquitous learning tools significantly enhance learner autonomy. Students reported greater control over their learning processes, increased motivation, and improved ability to manage their language learning outside the traditional classroom setting. The tools provided flexible and personalized learning experiences, allowing learners to engage with language practice according to their individual needs and preferences. They conclude that the integration of ubiquitous learning tools in EFL education is highly beneficial for fostering learner autonomy. They recommend incorporating these technologies into language teaching practices to support autonomous learning, enhance learner engagement, and ultimately improve language proficiency.

Ghaffari and Ranjbar (2019) investigated the utilization of mobile technology to bolster English learning among Iranian students. The study delved into how mobile devices can empower learners to take control of their learning process, promoting autonomy in language acquisition. Through a combination of literature review and empirical research, Ghaffari and Ranjbar explored the potential of mobile technology in EFL education. They highlighted the advantages of mobile devices, such as smartphones and tablets, in providing learners with convenient access to language

learning materials, interactive exercises, and communication tools. These resources enable students to engage in self-directed learning activities, including vocabulary practice, listening comprehension exercises, and communication practice with peers and instructors. The study also examines the impact of MALL on learner autonomy and proficiency. It was revealed that integrating mobile technology into EFL instruction enhances students' sense of autonomy and motivation, leading to improved language skills and confidence in using English.

Methodology

In this section, the way the research was conducted, the subjects selection method, and related issues are presented.

Participants

Sixty participants were selected from Payam-e-Nour University in Shiraz, Iran. They were EFL students who were both female and male. Their age ranges between 20 to 35 years old.

Design

This research utilized an experimental quantitative research design to investigate the impact of flipped instruction on Iranian EFL learners' autonomy, and self-regulation. The participants' selection method was based on non-random convenience sampling. The participants were then randomly assigned to one of two groups of experimental group which experienced Ubiquitous, flipped instruction, and the control group experienced traditional instruction.

Instruments

A learner autonomy questionnaire was used as both a pre-test and post-test to measure the participants' autonomy. The questionnaire included 44 statements based on nine dimensions related to language learning the items in these nine dimensions show whether EFL learners display a greater degree of control in a particular aspect of their learning. Table 1 displays the nine areas to be investigated in the LAQ. The LAQ was adopted in this study because it was the most comprehensive one in terms of the number of dimensions and therefore in terms of content validity as compared to the other questionnaires available in the area of learner autonomy as confirmed by many researchers in the field (Gömleksiz, & Bozpolat, 2012; Karagöl, 2008; Tilfarlioglu & Ciftci, 2011). To tailor the questionnaire to the Iranian context, after piloting the test to 20 students, some items were modified or replaced based on the experts' ideas. Some questionnaires administered in the Iranian EFL context were also examined to find items suitable for replacing the inappropriate items (Hashemian & Soureshjani, 2011; Rahnama & Zafarghandi, 2013). To collect the data on autonomy, the LAQ was administered in class with a thirty-minute allotted time period prior to the study as a pre-test and after the implementation period at the end of the twelfth week as a post-test.

Table 1: *Dimensions in Learner Autonomy Questionnaire*

Section	Number of items	Focus	Questions
Dimension 1	**6 items**	Readiness for Self-direction	What are the learners' beliefs relating to self-directed learning in general?
Dimension 2	**6 items**	Independent Work in Language Learning	What are the learners' beliefs about independent work in language learning?
Dimension 3	**8 items**	Importance of Class/ Teacher	How important do learners see the class/ the teacher in their language learning?
Dimension 4	**5 items**	Role of Teacher: Explanation/Supervision	What importance do learners give to teacher explanation and supervision?
Dimension 5	**4 items**	Language Learning Activities Outside the Class	Concerning particular language learning activities, what are the learners' attitudes?
Dimension 6	**3 items**	Selecting Content	What are the learners' attitudes relating to the selection of content for language learning?
Dimension 7	**3 items**	Intrinsic motivation	How confident do learners feel about defining objectives?
Dimension 8	**5 items**	Assessment/ Motivation	How important is external assessment in motivating the learners' work?
Dimension 9	**4 items**	Interest in mother Cultures	What are the learners' attitudes relating to the culture of other countries?

Self-regulation Questionnaire (SRQ) was another instrument of the study with 63 items which examined the degree of learners' independence. Researchers (Brown, 1998; Kanfer, 1970a, 1970b; Miller & Brown, 1991) established a seven-step model of self-regulation. These self-regulatory processes explain general principles of behavioral self-control.
All 63 items are answered on a 5-point Likert scale (Strongly disagree; Disagree; Uncertain or Unsure; Agree; Strongly Agree). The reliability and validity of the SRQ appear to be excellent. Test-retest reliability for the total SRQ score among 83 people was high; ($r = .94$, $p < .0001$). Internal consistency of the scale was also quite high it was equal to .91. The SRQ also has shown strong convergent validity with concomitant measures.

Another material for this study included video lectures sourced from YouTube, which are utilized to implement in the flipped classroom instructional group. These video lectures encompass a range of subjects pertinent to the course curriculum and are selected based on their educational quality, relevance, and alignment with learning objectives. The use of YouTube as a platform for sourcing video lectures is advantageous due to its extensive repository of high-quality educational content and its accessibility for both instructors and students.

Data Collection Procedures

The participants were randomly categorized into two groups experimental and control groups. In the current research, the pre-test at the beginning of the study and the post-test after the instruction were conducted equally on control and experimental groups. The learner autonomy questionnaire was administered in the first and last session with a thirty-minute allotted period before the study as a pre-test and after the implementation period at the end of the twelfth week as a post-test. Furthermore, SRQ was employed as both a pre-test and post-test to measure the students' self-regulation before and after the flipped instructional model to determine the possible changes. The results taken from the experimental group were recorded by the teacher to compare with a control group to evaluate the impact of FCM on students' language learning and to examine whether it had any effects on learners' autonomy and self-regulation or not.

Data Analysis Procedures

In the current research, the pre-test at the beginning of the study and the post-test after the instruction were conducted equally on control and experimental groups. To compare and contrast their performances some independent-sample t-tests were conducted. To answer the research questions, the researcher inspected the autonomy of learners and examined whether flipped instruction had any effects on the students' autonomy or not so, an independent t-test was run on their autonomy post-test mean score. Finally, an independent t-test was run on learners' self-regulation post-test mean scores of both control and experimental groups to examine the probable effect of FCM on learners' self-regulation.

Research findings

Table 2: Descriptive Statistics of all Participants' Pre- and Post-test Scores on the Research Variables

variables	test	N	Mean	Std. Error	Std. Deviation	Variance
Autonomy	pre-test	60	3.80	.042	.332	.110
	post-test	60	4.03	.073	.572	.327
Self-regulation	pre-test	60	3.42	.035	.271	.074
	post-test	60	3.53	.038	.296	.088

As Table 2 signifies, the autonomy mean score in pre- and post-test score were 3.8 and 4.03, respectively. Self-regulation pre-test mean score was 3.42 which increased to 3.53 in the post-test.

Table 3: ***Descriptive Statistics of Control and Experimental Group***

variables	group	Test	N	Mean	Std. Deviation	Variance
Autonomy	control	pre-test	30	3.79	.343	.118
	experiment		30	3.80	.326	.107
	control	post-test	30	3.83	.404	.164
	experiment		30	4.23	.647	.419
Self-regulation	control	pre-test	30	3.43	.277	.077
	experiment		30	3.42	.269	.073
	control	post-test	30	3.41	.222	.050
	experiment		30	3.65	.313	.098

Table 3 indicates that autonomy mean score in pre-test for control group was 3.79 and for experiment group was 3.8. Besides, for post-test control group mean score was 3.83 and 4.23 for experiment group. Self-regulation mean score of control and experiment pre-test were 3.43 and 3.42, respectively. Additionally, their post-test mean score was 3.41 for control group and 3.65 for experiment group.

Table 4: Independent Samples test of Control and Experimental Group Pre-test

Levene's Test for Equality of Variances		t-test for Equality of Means							
F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
							Lower	Upper	
Autonomy	.104	.748	-.08	58	.929	-.007	.086	-.180	.165
Self-regulation	.097	.757	.09	58	.923	.006	.070	-.134	.148

As Table 4 signifies, For the autonomy pre-test, also there were not any significant differences in the mean scores of the control group pre-test (M=3.79, SD=.343) and experiment group pre-test (M=3.8, SD=.326); t (58) = -.08, p = .929, P≥0.05). Similarly, the self-regulation pre-test comparison through independent pre-test revealed no significant differences in the mean scores of control group pre-test (M=3.43, SD=.277) and experiment group pre-test (M=3.42, SD=.269); t (58) = .09, p = .923).

Table 5: Independent Sample t-test of Control and Experimental Group Autonomy Post-test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Autonomy post-test	Equal variances assumed	5.072	.028	-2.870	58	.006	-.40003	.13940	-.67907	-.12099
	Equal variances not assumed			-2.870	48.648	.006	-.40003	.13940	-.68021	-.11985

As Table 5 indicates, there was a significant difference in the mean scores of the control group's autonomy post-test (M=3.83, SD=.40) and experiment group post-test (M=4.23, SD=.64); t (58) = -2.87, p = .000, P≥0.05).

Table 6: Independent Sample T-test of Control and Experimental Group Self-regulation Post-test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Self-regulation post-test	Equal variances assumed	5.523	.022	-3.51	58	.001	-.246	.07018	-.38741	-.10646
	Equal variances not assumed			-3.51	52.374	.001	-.246	.07018	-.38773	-.10614

Table 6 indicates that there was a significant difference in the mean scores of control group's self-regulation post-test (M=3.41, SD=.22) and experiment group post-test (M=3.65, SD=.31); t (58) = -3.51, p = .000, P≥0.05).

Discussion and Conclusion

This study designed to check whether flipped instruction has any effects on learners' autonomy or not. Independent sample t-test was run on the raw data of autonomy post-test mean scores of both groups to find an answer to this question. The results revealed that there was a statistically significant difference between the mean scores of the participants who experienced the flipped and traditional teaching models; those who participated in the flipped instruction group outperformed their counterparts. The outcomes of this study support those reported by Ghufron and Nurdianingsih (2019) who examined how the flipped learning model worked and affected EFL students' autonomy. Their results showed that after employing the flipped method in an EFL writing course, the learners showed high learner autonomy. While the current study, along with the studies by Mireille (2014), Ekmekci (2017), and Leis et al. (2015) demonstrated positive outcomes for the flipped instructional model in EFL contexts, it is important to consider contrasting studies to gain a holistic view. For instance, a study by Zainuddin and Halili (2016) reviewed various flipped classroom implementations and found that while many studies reported positive outcomes, some highlighted challenges such as students' initial resistance to the new model and the increased preparation time required for instructors. The current study also aimed at examining the effect of flipped instruction on EFL students' self-regulation. The results revealed that there was a statistically significant difference between the flipped-instructed students and the traditional taught ones. This conclusion aligns with the findings from previous studies conducted by Shafiee and Najafi (2021), Jafari and Ashrafi (2022), and Ghaffari and Ranjbar (2019). These studies also reported significant improvements in self-regulation among students who

participated in flipped instructional models compared to those in traditional settings. On the other hand, the FCM shifts the responsibility of initial content acquisition to the students, usually through video lectures or reading assignments before class. Class time is then utilized for interactive, student-centered activities such as discussions, problem-solving, and collaborative projects. This approach encourages students to take ownership of their learning, engage actively with the material, and develop self-regulation skills such as goal-setting, self-monitoring, and time management.

Conclusion

The current research has focused on evaluating the potential effect of flipped instruction on Iranian EFL learners' autonomy and self-regulation. For these aims, the researcher recruited 60 participants. The participants were categorized into experimental and control groups randomly. They were asked to answer to LAQ and SRQ, both prior and after the treatment. The control group experienced the traditional teaching on the other hand, the experimental group participated in a flipped instruction class. The first research question dealt with the variation in students' autonomy. The results of research confirmed that flipped instruction had significant effect on boosting EFL learners' autonomy. The second research question focused on the influence of flipping on EFL learners' self-regulation. The study revealed that the slight variation in the self-regulation of the participants was attributed to the flipped instruction. Therefore, the result confirmed the positive effect of flipped instruction on EFL students' self-regulation.

The present research established a significant contribution to practice in the English language learning and teaching realm. Flipping instruction has potentially to be utilized as an instructional method in the language learning field in Iran and in other similar educational contexts in which educational sectors' concern is motivating the EFL learners, engaging them actively in the process of learning, and improving their learning.

This research has methodological limitations. It was conducted on two language classes involving 60 EFL learners learning English as a foreign language. As every educational environment has its own specificity, it is hard to generalize the findings. It should be added that teachers and other stakeholders could identify the relevance with their own educational context and recognize the similarities of the findings.

Based on these findings, further studies should utilize qualitative methods to investigate self-regulated learning in a flipped learning context to compare and contrast self-regulated learning behaviors within different academic settings. This may provide a more precise understanding of the influence of flipped instruction on learning and would signify the factors affecting the relationship between flipped instruction and self-regulation learning. This result may contribute to devising programs to improve learning outcomes for EFL learners.

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