Investigating the Efficacy of Flipped Learning on Autonomy and Skill-Learning of Iranian EFL Learners

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Abstract

Flipped classroom is a learning model where assignments are shifted, and learning happens outside of educational settings. This modern concept fundamentally refers to lesson input being conducted at home by the learner for sharing and applying knowledge. FL approaches have received considerable focus in recently with the power to encourage involvement and cooperative learning. The FC is a technique that flips the conventional education setting. The FC is accordingly appropriate for online or mixed learning. In this research, the effects of FLA on autonomy and EFL skill-learning of EFL learners were examined. The research questions were pertinent to the basic outcomes of the implementation of FC. The results demonstrated that those getting benefit of FC approaches more enthusiastically perused using them compared to those who had not employed them before. The research outcomes indicated contribution of FL on autonomy and EFL skill-learning of the EFL participants in the experiment group.

1. Introduction

Not long ago, the shift from an instructor-centered approach to trainee- and digital literacy involvement has been regarded as a convinced prospect for pedagogy and learning models (Rahmati, Izadpanah, & Shahnavaz, 2021). The notion of flipped classroom coined by Aaron Sams (2000) has been found to be advantageous in terms of varying the learning methods provided that the pedagogical practice is used occasionally, and hence it can encourage better student engagement thanks to its novelty. The flipped classroom is a learning model that changes the preparations, and learning happens outside of educational settings (Karabulut-Ilgu, Jaramillo Cherrez & Jahren, 2018). Monica and Peter (2014) claim that the flipped classroom is a fairly modern concept in pedagogy that basically refers to lesson input being performed at home by the learner, and using class time for sharing and applying knowledge. There is no pattern and the classroom becomes the site to work out problems, improve ideas, and involve in cooperative learning. According to Ferriz et al (2022), modern technologies are progressively connected to the instructional world. It is a need to promote instructional approaches such as flipped learning so that education and technology may help an appropriate pedagogy. The first justification for flipped pedagogy as put by Katleen Fulton (2012) is to let high school students evolve in their own environment and at their own pace. Fulton explains that the speed at which the course unfolds satisfies neither those who understand quickly nor those who have difficulties. With the flipped classroom, each student advances at their own speed because the video can be viewed as many times as necessary and the Internet allows the learners to seek additional explanations. The second justification that Fulton puts forward is that the teacher can evaluate the time that each student takes to solve an exercise and can come back to the learning methods in a more individual way with the flipped class as the teacher knows better the difficulties specific to each student when the exercises are carried outside the classroom. A number researchers have declared that flipped learning in pedagogical settings benefits learners in reaching greater knowledge and enthusiasm and, as a result, higher academic achievement (Hinojo et al., 2020, Campos-Gutiérrez et al. 2021, Koh et al. 2020).

Chen Hsieh et al., (2017) also claim that in the flipped classroom the recent data are delivered to learners by means of videos and online application when they leave school. Learners involve in realistic practices supervised by the instructor at the school. Flipped learning hence presents learners the opportunity to engage readily and encourages an involving learning condition (Chuang, Weng & Chen, 2018). Students are provided with the learning videos prior to the classes to use them to learn at their own speed as the teaching time in a flipped classroom is flexible creating an engaging atmosphere where the learners are active part of the learning process (Chen Hsieh et al., 2017). The flipped classroom is accordingly advantageous and conducive for learning a second or foreign language as it requires time, practice, and patience. The flipped classroom as suggested by Han (2015) contributes to language learning for teaching time extension outside the class providing the chance for more activities and exercises. The flipped classroom paradigm is commonly found conducive and impressive for language learning classes since it is a student-centered activity and provides appropriate learning condition (Ghufron & Nurdianingsih, 2020). Put it other words, in a flipped curriculum the learners are demanded to be autonomous taking charge of their own learning (Martina & Afriani, 2020). Furthermore, employing technological tools and the

internet make learners able to have access to the required content and interact with their peers and instructors at any time and place. The various accessible educational resources also aid the learners to improve their capability in different language skills (Abu Safiyeh & Farrah, 2020). All the advantages of the Flipped Learning Approach (FLA), as mentioned above, demonstrate the requirement for further insight into how using FLA may culminate in the improvement of autonomy among language students and their competency in all language skills.

Due to the growing enthusiasm for flipped learning approach in the English learning context led to the studies scrutinizing its effectiveness on various language capabilities separately (e.g. Abdullah et al., 2019) and other features such as autonomy (e.g. Irianti et al., 2021). Large bodies of investigations so far investigated whether flipped learning approach results in language learners' achievement in learning EFL writing (e.g. Fathi & Rahimi, 2020) speaking (e.g. Yesilçinar, 2019), listening (Rajabi et al., 2021), and reading (Fathi & Mohammaddokht, 2022), rowe ver, the L2 language learning skills and independence of English language learners remain intact. In addition, regarding the EFL flipped classroom process during COVID-19, the results of content analysis by Coxall et al. (2022) showed that the modern research trend in emergency flipped classrooms is focused on EFL writing. The possible effect of the FLA on the independence and learning skills of Iranian learners to solve this gap was examined. The research questions are included as:

1) Does flipped learning approach (FLA) meaningfully affect Iranian EFL learners' L2 skill-learning?

2) Does flipped learning approach (FLA) meaningfully influence Iranian EFL learners' autonomy?

2. Review of literature

Technological enhancement and the availability of many technological and digital tools to the L2 instructors and trainees have shifted the curriculum in a meaningful way, culminating in the emergence of a new pedagogical method called flipped learning approach (FLA) where teaching is followed by different collaborative tasks at home providing the learners with materials outside the class (Lim et al., 2008). The emergence of this new approach and its overall use more specifically in recent years resulted in many research and scholarly efforts to examine the efficiency of FLA on different aspects of L2 learning including the psychological and linguistic abilities of the learners. Lee and Wallace (2018) in a study in fours section of the same English I course over two consecutive semesters compared the effect of the communicative language teaching approach and flipped learning among university students.

The educational approach of the flipped classroom was proposed by Lage et al. (2012). But the expansion of this innovative approach by Jonathan Bergman and Aaron Sams with the publication of the book "Flip Your Classroom" and choosing the name of the flipped classroom for this method was carried out in 2012. The authors of this book were chemistry teachers in the United States who, when teaching, faced problems from students such as absenteeism, lack of deep learning of concepts, weakness in learning strategies, low motivation to learn, lack of interest in some subjects, and.... and in order to solve these problems and address their individual needs, they suggested the personalization of the teaching-learning process through the presentation of the flipped classroom model. Flipped class means that what usually happens

in the classroom should be done at home, and everything that is usually done as homework at home should be completed in the classroom. In a flipped class, the professor has already prepared the form of an audio or video file to achieve this goal. Before entering the classroom, students should listen to the teaching of that day or watch its video. Investigating students' problems is dedicated to flipped class through group activities and question and answer. The flipped classroom can affect the teacher's teaching method and his interaction with students and even communication with parents. The main difference between the method of presenting material in the flipped class and the traditional class is that the teacher is no longer a speaker and controller of the teaching process and becomes a guide and facilitator of the learning process. Flipped class students control over the teacher's teaching process by stopping and rewinding the teacher's teaching video. In this way, students with different ability levels can listen to or see the teacher's teaching many times according to their needs without being accused of lateness or misunderstanding in front of their classmates. Therefore, the student himself takes the main responsibility of planning for studying and learning the educational material without worry. One of the other advantages of the flipped classroom is that by watching the videos, the parents are informed about the education process of their children, and from their feedback, they understand the status of their academic progress. Saving class time, the teacher getting to know more about the students and their strengths and weaknesses, creating a sense of responsibility and academic self-regulation in students, and creating an active learning environment are among the other advantages of the flipped classroom. In a report conducted by Cheng et al. (2019), it was found there is a highlighted impact in favor of the FC instructional strategy. One investigation (Shi et al., 2020) encompassed thirty three researches and indicated that FC training can certainly affect college learners' cognitive learning findings compared to old-fashioned presentations. Among the last meta-analyses (Bredow et al., 2021) extracted data from 317 reports, and concentrated on supplying evidence of the influences of flipped versus lecture-based learning. It was found out that FC culminated in beneficial gains across all the three learning realms and highlighted benefits of flipped over lecture-based instruction were found for seven out of eight learning outcomes.

Parvaneh, Zoghi, and Asadi investigated the flipped classroom, which showed that the flipped classroom has a prominent effect on independence. In terms of changes, the flipped classroom was compared based on (SDT) or Self-Determination Theory. Using a questionnaire, interview, and post-test, there was a difference between flipped and non-flipped classroom training. Learners had more ability to perform online tasks and activities in the flipped learning environment which had an effect on learners' intrinsic motivation. The flip class setting affectd participants' psychological needs, which included their ability. The flipped classroom model's effect on the independence of English language learners was analyzed by Tsai (2019). Participants were the experimental group that received flipped classroom instruction and a control group that was taught in a non-recessed classroom. In FC, various functions were embedded including video lectures and e-journals. The comparison between the questionnaire before and after the perceived autonomy of the learner did not show any difference between the groups before the training. However, in the learner's autonomous strategy learner's self-confidence and learner behavior, there was a statistically significant difference. Learner autonomy is enhanced in terms of the use of social resources and strategy application, which

represented a connection between flipped classroom activities and perceived learner autonomy. Based on Zainuddin and Perera (2019), in the 20th century, education and Social education were emphasized, and paying attention to learners' motivation and desire to learn, learning along with experience, and an inclusive-oriented approach is considered the priority of the education system. Based on Dewey's pragmatic philosophy, two schools of psychology can be related to the flipped classroom: the cognitive school and the constructivist school. A strong base of knowledge and new concepts with a structured method and organizing new concepts using the activation of the mind's brains. At the group level, with emphasis on the activities, Collectiveness in the class and participation of members' efforts, interpersonal communication, and putting students in the approximate area of development of the social aspect of teaching and learning are emphasized. Abu Safiyeh and Farrah (2020) dealt with the impression of flipped learning on improvement of English language skills and sub-areas among EFL learners in Palestine. Hence, the flipped learning was fulfilled with the experimental group, while the control group experienced traditional learning. Outcomes of the investigation proved that the experiment and control group had positive differences in English language skills and areas, where the former gained higher scores than the latter. Besides, listening, speaking, and communication were the most highlighted improved skills. Khosravani et al (2020) investigated the impression of flipped learning practice on learning and learner variables of motivation, autonomy, outcome and WTC among Iranian language learners. Outcomes of the analysis indicated a statistically meaningful variation between groups in success and autonomy, motivation and tendency to exchange.

Lofnertz (2013) investigated the flipped classroom in a high school in Sweden and found that the students had a positive opinion about it in learning skills and believed that the flipped classroom helped them to clear the ambiguity of grammatical points. Worden used the flipped classroom method to teach English skills in the conversation class to Italian learners. The results showed that the language learners had a positive attitude towards the flipped classroom and the time to learn skills and autonomy concepts at home and they believed that with this method, more time in the language classroom is devoted to communicative and meaningful exercises. Zheng et al. (2014) Vocabulary teaching to first-year language students in a university in China was investigated. They combined watching educational videos with story writing. At the end of the experiment, the experimental group was better than the control group significantly. Irianti et al (2021) analyzed the flipped learning effect on learning autonomy in senior high school students including 11 male and 19 female learners in the experiment group and 12 male and 18 female students. The researchers used LAQ as a quantitative data collection instrument along with the interview as a qualitative data collection tool. Results of data analysis indicated a meaningful difference in the learning autonomy of the students in the experiment group. In addition, female participants showed more autonomy in both classes. But in the narrative reading comprehension test, there was no significant effect despite the increase in the autonomy score. Both male and female students responded positively about increasing learning independence and flipped classrooms which had a good effect on students' learning autonomy. Öztürk and Çakıroglu (2021) investigated the effect of a training course on the improvement of language skills, which had two experimental and control groups, the former benefited from lessons using self-regulated learning strategies. The positive effect of self-

regulated learning strategies on improving foreign language skills with regulated learning techniques was the result. Also, there was a score difference on the speaking test, in which the experimental group performed better in the listening test results.

3. The Study

3.1. Research Design

This analysis was a control group, quasi-experimental, and pre-test, and post-test. In this type of design and control groups are used. The control group did not receive the trend, over a fixed period of time. Anyhow, the experimental and control groups undergo exactly the same tests in the form of pre-test and post-test. Statistical analyses are then used to determine if the intervention had a significant effect or not.

3.2. Participants

The study sample included 50 Iranian EFL learners who were randomly selected from among the target population based on availability and convenience. They were EFL learners at an intermediate level in Tehran. All the subjects were male students in the age range of 17 to 24 with a mean age score of 20.75. They were divided into two groups of 25 in two classes where the control group was assigned as a non-flipped learning model. The course was designed to enhance their language skills and learning autonomy. As the overall language proficiency level would affect the results of the participants, the homogeneity of the sample was ensured by administrating Oxford Quick Placement Test (Allan, 2004), prior to the study.

3.3. Instruments

English Placement Test: To evaluate the general language proficiency level of the subjects and to avoid the possible effect of their non-homogeneity on the generalizability of the results, a valid version of the Oxford Quick Placement Test (OQPT) was used containing 60 multiple-choice items on grammar and vocabulary areas. The OQPT was used as it is widely used, reliable, and valid. To evaluate the reliability of the test in this study, KR-21 formula was utilized, the results of which showed a reliability coefficient of 0.82, indicating good reliability of the instrument (Johnson & Johnson, 2010). *English Language Skills Test*: The English language skills of the participants were measured using two parallel versions of the Cambridge Preliminary English (PET) Test 4 as pre-test and post-test instruments. PET Test 4 measures the English language proficiency of the intermediate learners in three sections reading and writing, listening and speaking. The internal consistency of the PET Test 4 KR-21 formula as 0.75 and 0.79 at pre-test and post-test was also measured.

The Learning Autonomy Scale: The Learning Autonomy Scale (LAS) was adapted. The scale has two parts and 21 items, 11 of which rate the learners' autonomy based on a five-point Likert scale ranged from never to always. The second part of the scale includes ten forced-choice questions examining the learners' views on the principles of learner autonomy. The scale is argued to have great content validity and reliability of 0.8 as reported by Zhang and Li (2004). To meet the purpose of the present quantitative research, the first part of the scale was used as the instrument to measure the learning autonomy of the participants.

3.4. Data Collection Procedure

The experiment began following the random assignment to the experiment and control group. They were cautioned about the aim of the report and the confidentiality of the collected data.

To conduct the pre-test of the study, the Cambridge Preliminary English (PET) Test 4 and Learning Autonomy Scale were given to the subjects in 1st session. The experiment lasted for 8 weeks. Given the treatment for the experiment group (the flipped learning), the electronic version of the teaching materials was used each session while the control group received the printed version of the same materials each session. The teaching procedure at the flipped group included the presentation of the learning sources, assignments, videos, PowerPoint material including voice, and WhatsApp Messenger for sharing instructional voice and video files. The flipped group was exposed to the supplementary learning materials prior to the class. Following eight sessions of the experiment, participants took the Cambridge Preliminary English (PET) Test 4 and Learning Autonomy Scale again as the posttest.

3.5. Data Analysis

Both groups' data were analyzed through an independent t-test and one-way between-group analysis of covariance (ANCOVA) in order to analyze the effect of the flipped learning approach on the language skills and autonomy of the participants. OQPT scores were used for the experimental (inversion) groups and the control group (non-inversion). Flipped versus non-flipped influences learning on the dependent variables of EFL skills and demonstrated independence.

4. Findings

Given the outcomes of the independent-samples t-test to assure the homogeneity of the subjects at both groups on the basis of general EFL proficiency level, there was no meaningful difference in the OQPT scores for the experiment (M=45.27, SD=13.02) and the control group (M=47.75, SD=12.39); t(38)= -.586, p >0.05), as shown in Table 1, below.

Table 1 *Results of OQPT independent-samples t-test*

Groups	M (SD)	T	Sig.
Experiment (Flipped)	45.27(13.02)	-.586	0.483
Control (non-flipped)	47.75(12.39)		

The descriptive statistics regarding the scores of the participants on EFL skills at pre-test were computed as demonstrated in Table 2.

Table 2 *Pre-test statistics*

	Groups	N	Mean	Sig.
Pre-test	Experiment (Flipped)	25	22.19	0.56
	Control (non-flipped)	25	21.76	

The results of the EFL skills pre-test indicated that between the experiment group and control group participants, there was no meaningful difference, in terms of general EFL skills. The descriptive achievement post-test scores of the experiment and control group participants were also shown in Table 3, below.

Table 3 *Post-test statistics*

	Groups	N	Mean	Sig.
Pre-test	Experiment (Flipped)	25	65.36	0.001
	Control (non-flipped)	25	43.51	

Results of the EFL skills post-test indicated that in EFL skills, there was a significant difference in experiment group. To define the influence of flipped learning on the scores of the experiment group participants on post-test per skill (including reading and writing, listening, and speaking), the post-test statistics of the experiment and control group were provided in Table 4.

Table 4 *Post-test statistics*

Group	EFL Skills	N	Mean	SD
Experiment (Flipped)	Reading	25	71.39	24.176
	Writing	25	60.00	26.647
	Listening	25	35.55	16.978
	Speaking	25	65.41	21.294
Control (non-flipped)	Reading	25	50.92	15.346
	Writing	25	45.73	17.387
	Listening	25	28.09	16.413
	Speaking	25	40.56	18.083
Mean	Experiment (Flipped)	25	65.62	15.118
	Control (non-flipped)	25	42.63	13.514

T-test demonstrated a convincing difference between two groups in EFL skills encompassing reading, writing, and speaking scores. After all, there was no meaningful difference on the basis of listening test scores. With the question about the influence of flipped learning on Iranian EFL learners' L2 skill-learning, there was a highlighted difference based on the overall average scores where the experiment group outperformed the control group. Moreover, to define the influence of the FLA on EFL skills of the participants more precisely, the results of the ANCOVA (Table 5) also demonstrated a statistically highlighted difference between two groups on post-test scores of EFL skills ($F= 67.66$, $p \leq 0.001$, partial eta squared=0.246). Accordingly it can be assured that flipped learning approach substantially aided to improved EFL skills of the participants in the present investigation.

Table 5 *ANCOVA results on EFL Skills learning*

Source	Type III sum of squares	DF	Mean Square	F	Sig.	Partial eta squared
Covariate (pretest)	674.193	1	674.193	57.162	.000	.512
Between-subjects	137.112	1	137.112	67.660	.001	.246
Within-subjects	367.454	49	12.561			

Regarding FLA to the autonomy of Iranian English language learners, descriptive statistics (Table 6) showed that the average score of the flipped group for autonomy in the pre-test was

29.42. It increased to 47.19 in the post-test. Also, the average self-management score of the control group was 24.25 in the post-test and 26.21 in the pre-test with a slight decrease.

Table 6 *Descriptive Autonomy pre-test & post-test statistics*

Groups		N	Mean	SD
Experiment (Flipped)	Pre-test	25	29.42	12.09
	Post-test	25	47.19	12.70
Control (non-flipped)	Pre-test	25	26.21	11.09
	Post-test	25	24.25	11.80

In addition, the results of ANCOVA (Table 7) show a significant statistical difference between the two groups in the autonomy post-test scores to adjust the autonomy pre-test scores (F=67.655, p≤0.000, square and partial square=0.513). indicating the prominent contribution of FLA to the independence of EFL participants in the experimental group.

Table 7 *Results of ANCOVA on Autonomy*

Source	Type III sum of squares	DF	Mean Square	F	Sig.	Partial eta squared
Covariate (pretest)	563.082	1	563.082	236.0.84	.000	.826
Between-subjects	165.054	1	165.054	321.752	.000	.711
Within-subjects	267.541	49	19.182			

5. Conclusion & Discussion

Since digital machinery seems to infuse all life aspects, it is a must to devise and enhance instructional approaches in all educational aspects. The instructional approach named flipped learning (FL) has earned popularity in educational settings recently. Anyhow, there is no profound report about the approach affects learners in their learning and their inclination to their intended aims (Tang et al., 2020). Disregarding the issues, it is advisable that university plans pursue providing favorable instructional services. As a result, many mechanisms ensure that teaching is carried out regularly. Educational environments have found modern options to engage learners in the light of the current crisis and have reanalyzed their educational resources. Modern approaches based on the technology of online devices is regarded in this tense time (Vila et al., 2020). Smith and Buscock (2021) provided students with self-directed instructional resources, for example, before class with the same goal of engaging them despite pandemic restrictions and helping to increase student learning success as standard flipped classroom instruction along with interactive online lectures, videos, or case studies, where educational topics are reviewed and explained. They improved both students' satisfaction with the investment approach and their subsequent confidence in the skills during the course.

Monzonís et al. (2020) analyzed the perceptions of education learners who benefited from the flipped method and found that they improved their enthusiasm because of the method. The current research analyzed the effect of the flipped learning approach on the independence of Iranian English language learners and on the learning of general language skills and autonomy. The results of the data analysis indicated that the participants in the experimental group had

higher scores in the English language skills of reading, writing, and speaking according to the first question of the research and autonomy according to the second question. However, there was no significant impact of flipped learning found on listening skills. These findings were in line with the study of Lee and Wallace (2018), Zainuddin and Perera (2019), and Khosravani et al (2020) who found the meaningful powerful impression of flipped learning approach on language learning skills. Given the results concerning listening skills, it was in contrast to the study of Abu Safiyeh and Farrah (2020) who found that listening was among the most prominently improved skills given the significant impact of flipped learning approach. It was in line with the study of Öztürk and Çakıroglu (2021) who found no significant impact of flipped learning approach on listening test scores of the EFL learners. Moreover, concerning reading skills, the results were in contrast to the study of Irianti et al (2021) who found the non-significant influence of the flipped classroom on the narrative reading comprehension ability of the learners. Results of the study with regards to the second research question indicated the higher autonomy scores of the participants at the experiment group. It was in line with the study of Tsai (2019), Zainuddin and Perera (2019) and Khosravani et al (2020), and Irianti et al (2021) who found positive significant influence of flipped learning approach on the autonomy of the students.

Concerning the results of the research, it can be concluded that the outperformance of the participants in the experiment group in autonomy in comparison with the control group can be due to their better performance in terms of EFL skills. That is, students with higher scores on EFL skills experience more autonomy. Given the final results of this study, it would be interesting to deal with the effect of flipped learning approach on the other psychological factors with mediating impact on EFL learners' autonomy. Moreover, outcomes of the investigation indicates the need for further exploration of the flipped learning approach on general language learning skills of the EFL learners through more precise mixed-method analysis. Outcomes of the investigation would be helpful for the EFL teachers, curriculum designers, scholars and researchers.

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