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Flipped classroom model and self-efficacy in an Iranian English as a foreign language context: A gender-based study

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Abstract

This study aimed to investigate the impact of the flipped classroom model on students' self-efficacy and the difference in self-efficacy between males and females using this model. In order to accomplish this, 66 advanced participants were selected from a private English language institute. They were divided into two equal groups, namely experimental (flipped classroom) and control (traditional) group. The students' self-efficacy was scored before and after the intervention with the Self-Efficacy Survey. The results indicated an increase in their average self-efficacy score with the flipped classroom while the traditional classroom decreased their average score. When the genders were analyzed separately, the males demonstrated a decrease in self-efficacy while the females indicated an increase while utilizing the flipped classroom. In light of these results, some recommendations have been made.

Authors

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Introduction

The term 'flipped-classroom' was first coined by Baker (2000) and has become central to discussions related to technology-enhanced and student-centred learning. On a practical level, the flipped approach is a type of blended learning where classroom activities and homework are reversed (Webb & Doman, 2019). Utilising educational technology, students access the learning material prior to class, and come prepared to apply what they have learnt in a dynamic and interactive classroom environment (Chen Hsieh, Wu, & Marek, 2017; Chuang, Weng, and Chen, 2018), where the teacher "guides learners in applying concepts and engaging them in the subject matter creatively" (Flipped Learning Network, 2014, p.1). In this way, the flipped classroom turns the traditional learning structure on its head. Instead of using class time for passive learning activities like reading, watching and listening, students are given these materials to engage with before class, and then class time can be used for group activities, class discussion and peer-to-peer collaboration.

There is growing evidence that a flipped-classroom has advantages over traditional classrooms, such as unlimited instructional time, a diverse learning environment, improved student engagement, flexibility, individual attention, and classroom management (Nolan & Washington, 2013; Amiryousefi, 2017; Chen Hsieh, Wu, & Marek, 2017; Turan & Akdag-Cimen, 2019). This student-centered approach allows more time in class for teachers to check comprehension, answer queries and clear up any confusion that students may have around a new topic. Further, having unlimited time to engage with the learning material at their own pace before class (Mason, Shuman, & Cook, 2013; Rahimi, van den Berg, & Veen, 2015), students feel a greater sense of control over their learning (Haghighi, Jafarigohar, Khoshsima, & Vahdany, 2018; Liu, Lan, & Ho, 2014). The flipped approach is also said to increase transparency in the learning process (Bergman & Sam, 2012; Chou, 2018; Helms & Walker, 2018, Samiee Zafarghandi, 2018), and potentially enables differentiated instruction (Bisaws & Debnath, 2020).

Nolan & Washington (2013) found the use of the flipped classroom improved student behaviour, while others found that the increased time given over to active and collaborative classroom practices helped students take more responsibility for their own learning (Electronic Education Report, 2011; McNamara, 2011), and increased the quality of students' work (Marlowe, 2012). These findings indicate improved self-awareness and self-efficacy (Bandura, 1997; Mason, Shuman, & Cook, 2013; Rahimi, van den Berg, & Veen, 2015), and corroborate the ideas of Ajzen (2005) and Akçayır (2018), who suggest that students with positive attitudes towards their class experience a higher level of self-efficacy of the students.

In the EFL context in Iran where this current study is located, research has also shown that the flipped classroom produces promising results for language learning. For example, Mohammadfi, Barati, and Youhanaee (2019) discovered that flipped classrooms enhance Iranian EFL learners' language achievement and their willingness to communicate. Further, it has proven to be beneficial in boosting Iranian EFL learners' writing skills (Abedi, Namaziandost, & Akbari, 2019). Indeed, Iranian EFL teachers and learners tend to have positive attitudes towards the employment of flipped-classrooms in language teaching and learning (Jafarigohar, Khoshsima, Haghighi, & Vahdany, 2019; Vaezi, Afghari, & Lotfi, 2018). Consequently, this research was conducted in order to better understand the possible impact that the flipped classroom model may have on Iranian EFL learners' self-efficacy.

This study aimed to answer the following research questions:

RQ 1. Does flipped classroom model have any significant effect on English as Foreign Language (EFL) learners' self-efficacy?
RQ 2. Is there any significant difference between male and female self-efficacy when using the flipped classroom model?

Method

Participants

In this study, the researcher selected 66 participants out of 75 advanced EFL learners in a private language institute in Ahvaz, Iran. The primary selection tool was the Oxford Placement Test (OPT), a multiple-choice test that determines language proficiency. All selected participants represent an advanced level of proficiency according to this test. The participants were both female (n=30) and male (n=36) students within the age range of 18 to 21, who were randomly divided into two groups of 28: experimental and control. The institute in which this study was conducted exhibits low ethnic diversity with less than 6% of students indicating minority status on a demographic survey. Likewise, less than 4% of students in the study indicated ethnicity. High homogeneity of students in both the school and the study could help eliminate statistical noise from outliers. Students that have similar background would have similar results.

Prior to data collection, the researcher submitted the survey instrument, protocol form, parent permission form, and youth assent form to the Department of Ministry of Higher Education for study approval. Moreover, ethics approval from the institution was obtained. Once granted, the researcher invited the students to participate in the study and asked them to sign the assent form and had a parent/guardian sign the consent form. Fifty-eight students returned the forms agreeing to participate in the study while four declined to participate.

The self-efficacy scale

The Self-Efficacy Scale (Greene et al., 2004) was used for this study. The Self-Efficacy Scale survey is designed to identify students' beliefs about their perceived self-efficacy of their learning and to assess their views about a traditional classroom teaching model compared to the flipped classroom. The Self-Efficacy Scale has a Cronbach α reliability of .91 and had been validated with 220 high school students from a suburban high school in the Midwest (Greene et al., 2004). The survey was also validated in two other studies done by Miller at al. (1996) and Greene, & Miller (1996). Reliability was also established using factor analysis, path analysis, and regression (Price, 2006). Price (2006) adapted the Self-Efficacy Scale survey and reworded question two and question six to reverse their value ordering. All questions contained the phrase "in this class" to focus student answers on the physics class in which they were enrolled. The answers contained a value range from 1-strongly disagree to 4-strongly agree. Total summation of score was used to determine an individual participant final score. The higher the scores, the higher the students' self-efficacy (and vice versa). The Cronbach's alpha value of the self-efficacy questionnaire was .899.

Procedure

The control group (n = 31, 54.83% male; 45.16% female) was taught as a traditional classroom with lectures and demonstrations that students are quite familiar with. Their homework was assigned at the end of the lecture and completed at home in their own time. The timeframe for this study was eight weeks. The students had formative assessments during their lecture to complete and direct their learning pace, and they had a summative assessment at the end of each unit over the 8 weeks with each subject being a unit.

The experimental group (n = 35, 54.28% male; 45.71% female) was in the afternoon and received a list of lessons, homework and activities at the beginning of each unit that needed to be completed in the given time frame for each lesson. The activities, labs, and homework were done in class at their own pace. This model of the flipped classroom was described as the flipped mastery model by Bergmann and Sams (2012).

All of the vodcasts used in the experimental group's flipped class were instructor generated. A vodcast is a video podcast that students can access for notes. The vodcasts were produced by making screenshots of the traditional PowerPoint lecture used in the traditional classroom. The researcher produced the vodcasts to cover each section within each of the three units and included an activity for each vodcast. These vodcasts were produced and saved at Screencast-OMatic.com with a link to each of the vodcasts posted on an online classroom called Schoology.com. The vodcasts were consistently between 10-12 minutes in length to ensure reasonable viewing time for students as suggested by Bergmann and Sams (2012). Students in the intervention group had access to this online classroom that connected the students to the unit objectives, vodcast links, and assignments. All activities and assignments were linked to Iranian Ministry of Higher Education standards. Students studied rotational dynamics, rotational kinematics, and fluids with each subject being a unit. The researcher used a coin flip to determine which class to use as the intervention, and as a result, the morning class became the control group and the afternoon class became the intervention group. Students in experimental class began working through each of three units using the flipped classroom model of teaching. Students in the control class continued their education through traditional means.

The experimental group's assignments were completed during class time and their only homework was to view lecture and review the section before each activity. Students needed to view the lessons and complete a specific notes worksheet to show that they had watched the lesson on their own time. It is worth noting that the authors considered the practical problems to be aware of the students who did not watch but self-reported that they did. This situation is very likely and of paramount importance because sometimes student disengagement in pre-class activity is one of the biggest challenges of a flipped-class model. Once they returned the vodcast notes worksheet, the students received the activity or assignment that corresponded to the vodcast. These were to be completed in the classroom during the period. Students that had questions discussed them with the teacher as an individual, in small groups, or through peer work. Their activities were identical to the activities of the comparison group but were done in smaller group settings. The same summative assessments were given to the experimental group to conclude each of their three units of learning. These units were the same as the comparison group. After the ten weeks of units concluded, both groups were given the post-intervention survey to identify the students' view on their perceived self-efficacy while learning in their respective teaching models.

Data Collection and Analysis

The pre-treatment Self-Efficacy Survey was administered to both classes before the intervention to establish baseline data about how well students perceived their ability in the traditional classroom. After eight weeks of intervention, all students were given the post-treatment Self-Efficacy Survey. The post-treatment surveys were compared to the pre-treatment surveys to identify if there was a change in self-efficacy and, if so, the extent of change.

Survey data were analysed and interpreted according to the objectives of the study. Data was analysed using descriptive statistics by comparing the differences of means. The researcher calculated the effect size (Cohen's d) to identify the magnitude of the difference between self-

efficacy of the experimental group and the control group without identifying significance. Statistical significance is dependent on larger sample sizes in order to show small effects being significant. Conversely, small sample sizes with no significance would have shown some effect. Due to the small sample size of this study, statistical significance may not have shown accurate statistical effects. Cohen's d was calculated by the mean difference between the two groups, and then dividing the result by the standard deviation.

Results

The descriptive statistics of both groups (experimental and control groups) illustrated in Table 1.

Table 1. Experimental and Control Groups Performance on Pretest and Posttest

	Groups	*n*	Mean	*Std*. Deviation	*Std*. Error Mean
Pretest	EG	35	25.45	4.02	0.68
	CG	31	24.12	3.65	0.65
Posttest	EG	35	29.25	6.26	1.05
	CG	31	23.06	3.75	0.67

Table 1 shows that the EG learners' mean score on the pretest and posttest equaled 25.45 and 29.25, respectively, and the CG learners' mean score on the pretest and posttest was 24.12 and 23.06, respectively. To see whether the difference between these two mean scores, and thus the two groups on the pretest and posttest, was statistically significant or not, the researcher had to examine the *p* value under the *Sig.* (2-tailed) column in the *t* test table. In this table, a *p* value less than 0.05 would indicate a statistically significant difference between the two groups, while a *p* value larger than 0.05 indicates a difference which failed to reach statistical significance.

Based on the information presented in Table 2., there was not a statistically significant difference in the pre-test scores for EG ($\overline{x}$ = 25.45, *SD* = 4.02) and CG ($\overline{x}$ = 24.12, *SD* = 3.65), $t(64) = 1.39$, $p = 0.161$ (two-tailed). This conclusion was made since the *p* value was larger than the significance level ($p > 0.05$). Hence, it could be inferred that the learners in the two groups were at the same level in pre-test. Moreover, As could be observed in Table 2, there was a statistically significant difference in the post-test scores for EG ($\overline{x}$ = 29.25, *SD* = 6.26), and CG ($\overline{x}$ = 23.06, *SD* = 3.75) on post-test of self-efficacy since the *p* value under the *Sig.* column was found to be less than the specified level of significance (i.e. $p < .001$), meaning that the two groups significantly differed in terms of self-efficacy after the treatment. These results could also be clearly noticed in the bar chart that follows (Figure 1).

Table 2. Results of Independent-Samples t Test Comparing the Pretest and Posttest Scores of EG and CG

		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
Pretest	Equal variances assumed	0.12	0.73	1.39	64	0.161	1.32	0.95
	Equal variances not assumed			1.40	63.95	0.161	1.32	0.94
Posttest	Equal variances assumed	6.57	0.01	4.79	64	0.000	6.19	1.29
	Equal variances not assumed			4.93	56.64	0.000	6.19	1.25

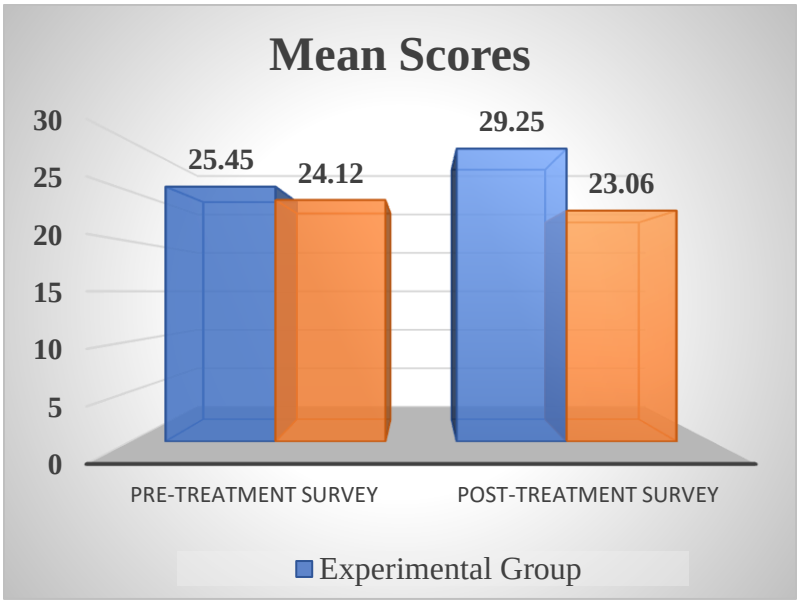

Figure 1. Comparison of Mean Scores on Self-Efficacy Survey

The mean score on the pre-treatment survey were compared to the post-treatment surveys. All students took the pre-treatment survey before the instruction started. The control group had a pre-treatment mean score of 24.12 and a post-treatment mean score of 23.06 with a mean difference of

-1.06 (see Table 1). The experimental group had a pre-treatment mean score of 29.25 and a post-intervention score of 25.45 with a mean difference of 3.8 (see Figure 1). The standardized effect size, d, was 0.72 indicating a medium effect.

Considering each gender performance in both EG and CG, the results can be seen in Table 3.

Table 3. Descriptive Statistics for Comparing Pretest and Posttest Scores of the Each Gender in Both Groups

		Mean	*n*	*Std*. Deviation	*Std*. Error Mean
Pair 1	Male. EG. Post	25.36	19	5.64	1.29
	Male. EG. Pre	26.52	19	5.10	1.17
Pair 2	Female. EG. Post	26.85	16	3.42	0.85
	Female. EG. Pre	24.56	16	2.65	0.66
Pair 3	Male. CG. Post	21.14	17	3.59	0.87
	Male. CG. Pre	22.47	17	4.83	1.17
Pair 4	Female. CG. Post	22.59	14	2.16	0.57
	Female. CG. Pre	22.03	14	2.91	0.77

In order to find out whether this difference between the pretest and posttest scores of each gender in both groups was statistically significant or not, the following *t* test table had to be checked.

Table 4. Results of the Paired-Samples t Test Comparing Pretest and Posttest Scores of the Each Gender in Both Groups

		Mean	*Std*. Deviation	*Std*. Error Mean	*t*	*df*	Sig. (2-tailed)
Pair 1	Male. EG. Post - Male. EG. Pre	-1.15	5.53	1.26	0-.91	18	0.371
Pair 2	Female. EG. Post - Female. EG. Pre	2.25	1.94	0.48	4.61	15	0.000
Pair 3	Male. CG. Post - Male. CG. Pre	-1.32	2.76	0.66	-1.97	16	0.061
Pair 4	Female. CG. Post - Female. CG. Pre	0.57	2.76	0.73	0.77	13	0.450

Table 4 revealed that there was a statistically significant difference between the pretest ($\overline{x}$ = 24.56, *SD* = 2.65) and posttest ($\overline{x}$ = 26.85, *SD* = 3.42) scores of the female learners in EG, since the *p* value under the *Sig,* (2-tailed) column was smaller than the significance level (i.e. $p < .001$). This indicates that the treatment (using flipped classroom model) was effective so far as the self-efficacy of the female learners were concerned. The overall performance of both genders in EG and CG is also shown in the bar chart in Figure 2:

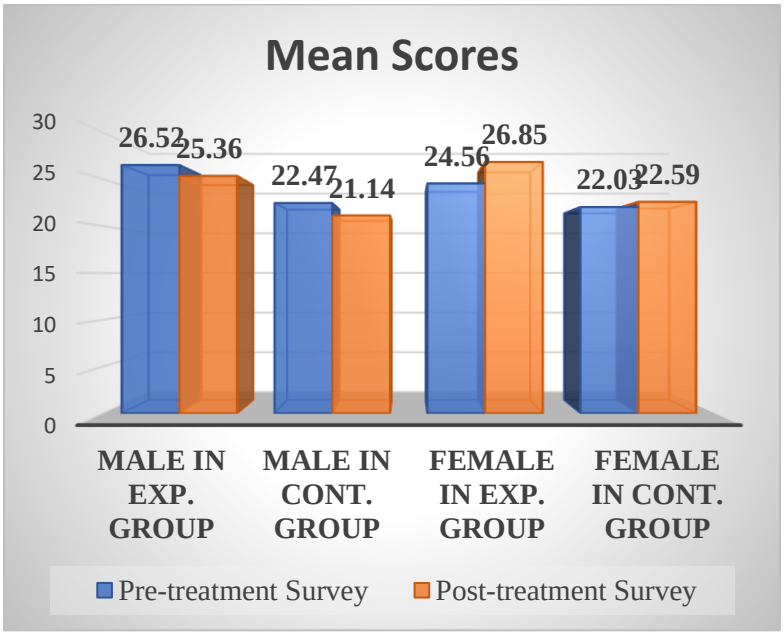

Figure 2. Comparison of Male and Female Mean Scores on Self-Efficacy Survey

When isolating gender of each group, the mean score of the males in the control group had a pre-treatment score of 22.47 and a post-treatment mean score of 21.14 with a mean difference of -1.33. The mean score of the males in the experimental group had a pre-treatment score of 26.52 and a post-treatment mean score of 25.36 with a mean difference of -1.16.

Moreover, the mean score of females in the control group had a pre-treatment score of 22.03 and a post-treatment score of 22.59 with a mean difference of 0.56. The mean score of females in the experimental group had a pre-treatment score of 24.56 and a post-treatment score of 26.58 with a mean difference of 2.02. The standardized effect size index, *d*, was 0.73 indicating a medium effect.

Discussion

The first outcome of this experiment was that the flipped teaching model was shown to significantly increase the participants' self-efficacy. With regard to the pedagogical elements of flipped education classes, this result could be clarified. To start with, pre-class instructional materials were presented to the participants in the flipped group, and the class commenced with production and interaction. Flipped classroom learning's success and quality depends on whether the students are pursuing the practice of training outside the school. The teacher used the study log to ensure that the students watched the instructional videos and provided them with timely feedback before attending the class. Moreover, a possible interpretation for this result is that the flipped teaching activities promote students' cognitive engagement and helped them to interact efficiently with learning content than in the lecture-based teaching activities (as reflected by the higher test scores in all tests after flipped teaching strategy) and consequently improved and promoted their self-efficacy perception. This interpretation is consistent with prior self-efficacy research. According to this theory, self-efficacy reflects what individuals believe they can do with the skills they possess and they can accomplish.

Furthermore, in explaining this finding, it can be said that in the flipped classroom method, the teacher provides students with content that they are supposed to teach learners in a meeting. They

should learn at home or in an area other than the classroom, individually, by learning the content of the educational content by viewing a video or textual and audio file, or whatever a teacher gives them in order to better understand the subject of the classroom session, and in the classroom study lessons. Classroom is a place to talk with the teacher - questions and answers, and exercise solving are events that occur in the classroom. Learning activities that are supposed to happen at home will replace teaching in the classroom (Lee & Wallace, 2018). This method will keep students aware of their abilities for self-learning and they will find that lessons can be heard and learned before interacting with the teacher. Thus, they grow and understand their own capacity for learning with self-reliance, which increases their self-efficacy. On the other hand, the result shows that a traditional teaching method is not significantly related to students' self-efficacy, and this may be the explanation why the self-efficacy score went down in the control group over time.

Such results offer proof that self-regulatory learning approaches may support students through the proactive development of information and the use of successful learning strategies. (McNamara, 2011). The method of learning implemented in a flipped classroom model offers a clear learning framework through which students will track their own learning experience and determine the most effective learning methods for them. This finding is also compatible with the hypothesis suggested by Zimmerman, Bonner and Kovach. (1996) that the incorporation of self-regulatory instruction into courses will boost the academic outcomes of students. In addition, this study enabled students to undergo active learning and to provide customized input based on their learning level, which increased their self-efficacy (Bandura, 1997).

Another significant feature of the flipped classroom model is students' participation, which shows students' self-efficacy and self-regulation (Bloom, Kurian, Chua, Goh, & Lien, 2013). Many studies have demonstrated that the motivation of learners is related to their learning success and the techniques they utilise (Kim, Kim, Khera, & Getman, 2014; Shea & Bidjerano, 2012). For instance, there is a lot of material available on the Internet to support the out-of-class study environment, some of which may inspire students to acquire more knowledge or may affect the focus of students' learning. In this case, how students utilize the tools and the methods they bring to learning is of high prominence (Rahimi, van den Berg, & Veen, 2015). When students display improved self-regulation, they can successfully explore and acquire learning materials without being influenced by other irrelevant items (Liu, Lan, & Ho, 2014). In contrast, students with low self-regulation (low motivation) who do not engage with out-of-class learning may not be willing to participate in flipped classroom activities at all (Rahman et al., 2015). In other terms, the out-of-class learning success of students plays a significant part as students and teachers execute their in-class practices. (Mason, Shuman, & Cook, 2013). As a consequence, how students manage their self-regulation is seen as a crucial problem for the flipped classroom model for students' learning success and a framework for motivating students to be self-regulating in learning is important when introducing flipped learning practices.

In a flipped classroom model, students learn both in class and out of class. Students are trained in class by peer groups and at home by watching video lessons (Bishop & Weller, 2013). Flipped learning consists of two main parts: interactive learning and communication within the classroom and computer-assisted generalizations outside the classroom. That is, students can explore additional opportunities to engage with learning English using software that enables them to generalize all components of learning English as a foreign language. Therefore, flipped-class education is a combination of traditional and modern patterns, both of which play an important role in achieving the goal of learning. It is very valuable for teachers to attend classrooms if they are faced with a question, they can answer it (O'Flaherty & Phillips, 2015).

The results of the present study tend to be congruent with research carried out by Helms and Walker (2018), Chou (2018), Samiee Zafarghandi, (2018), and Lee and Wallace (2017), in which flipped group students outperformed non-flipped group students. Nevertheless, the prior researches were carried out to investigate the impact of flipped classrooms on speaking, listening, writing and reading, and it seems to be the first research carried out in Iran to reconnoiter such an impact on self-efficacy. The positive influence of the flipped teaching model could be surmised and explained for what Silberman (1996) called active learning where stimulation of mental processes of higher order such as critical thinking, problem-solving, memory, and decision-making during the learning process will encourage language learners to consciously put what they already know to bear on what they are expected to learn and do. Therefore, these factors can result in increasing the inspiring consequences of learning. Specifically, flipping pragmatic instruction may help resolve some of the problematic issues raised by Allami and Naeimi (2011) in the refusal speech act among Iranian EFL learners. The learners in the flipped classroom were active students, as opposed to the passive role that the learners usually play in Iranian EFL classes. Another fundamental factor in the flipped classroom's performance is the quality time spent in the class compared to conventional classrooms. In this study, the instructor in the traditional group had to introduce and describe each form of refusal, give examples and watch a clip about it. As such, nearly 90 percent of class time was primarily dedicated to lecturing, watching films, correcting errors, and only 10 percent devoted for the communicative utilization of speech act. In the flipped classroom, on the other hand, about half of the classroom time was dedicated to activities that facilitated the utilization of the speech act under research by the learners and increased their mastery through authentic communication.

The fundamental finding of this study is that in the course of technology integration, the utilization of the flipped teaching strategy does indeed have the potential to help EFL learners develop their learning outcomes. This advantage was shown by the statistically significant disparities in learning consequences between students instructed by flipped and lecture-based instruction techniques, with the highest scores in the flipped classroom obtained by students and the least in the lecture-based classroom. The outcomes of this study reinforce previous findings in other content areas and with different populations and provide experiential evidence validating the flipped teaching model to enhance the learning outcomes of students (Sadaghiani, 2012; Walker, 2011). In addition, the test scores of the students increased in all tests after participating in flipped teaching practices relative to their test scores after lecture-based activities. One probable explanation of this finding is that during the flipped classroom, learners had the opportunity to co-operate and become involved in practical learning activities that enabled them to take part in an authentic and collaborative learning environment. According to Demetry (2010), the usefulness of the flipped classroom on student learning is attributed, according to previous studies, to the supplemental opportunities for learners to co-operate and work together to solve the problems.

In addition, the provision of multimedia learning materials for learners to study outside the classroom enable them to learn content at their own speed and allows them to access and listen to those parts that represent essential or complicated concepts (Gibbons, 1977). This commentary is in line with previous cognitive studies, which recognized the positive impact of permitting learners to monitor the learning material speed or flow. If students lack control over the speed of learning content, their confined cognitive abilities may be burdened, particularly learning from multimedia materials. Based on cognitive theory of multimedia communication, only small amounts of the large quantities of visual and auditory information obtained can be interpreted by the human cognitive system. Unlike the processing printed text, learners in formal educational contexts are typically unable to stop digital communication and focus on what they are learning and recognize probable gaps in their knowledge. Therefore, information processing sometimes takes longer and more intensive cycles of mental and metacognitive behavior. Regardless of how much information is

presented in each sensory channel, the student's working memory can acknowledge, store and transfer only a restricted number of information units to long-term memory (Attneave, 1954; Jacobson, 1951). Working memory, thus, needs delays or specific opportunities to acknowledge, store and transfer only the most important information to long-term storage.

Another noteworthy consequence of this study is that learners' self-efficacy perception was enhanced after participating in flipped teaching strategy unlike their self-efficacy perception after lecture-based. This advantage was revealed by the statistically notable variations in the self-efficacy scores reported after the flipped activities compared to the lecture-based results, with the highest scores gained by students after the flipped activities and the least in the lecture-based scores. A probable explanation for this outcome is that the flipped instruction activities improve the cognitive involvement of students and assist them in effective interaction with learning content compared to the lecture-based instruction activities (as demonstrated in the higher test scores in all tests after the flipped instruction model) and thus enhanced and progressed their perception of self-efficacy. This exegesis is congruent with previous self-efficacy studies. Based on this concept, self-efficacy represents what individuals think they can do with the abilities they possess and can do.

Furthermore, universities and instructors may find the findings of this study to be very beneficial as it will help them take advantage of the fact that students who have taken flipped learning courses find flipped courses successful by engaging this unique model in their learning process. In addition, educational settings will benefit from providing opportunities for students to use the flipped approach in a number of different contexts, such as first year workshops or induction environments, hand in hand with this endeavor. Providing additional opportunities for instruction will potentially help students escape the frustration of trying to learn the flipped style in a second language classroom for the first time–an environment that can already sound unfamiliar to the new student.

Conclusion

After analyzing the data of pre-test and post-tests, the results revealed that there was a significant difference in the self-efficacy of the students in the intervention group, but in contrast, there was a decrease in the self-efficacy of the compared group. The flipped-classroom focused on initial learning through online vodcasts and the academic lecture was directed towards individual student learning. The time of questions and answers were decreased in the flipped-classroom because students wrote down their questions while watching the vodcast and their questions would be answered individually.

Generally, the self-efficacy of the males in both groups decreased. Additionally, the self-efficacy of the students in the control group decreased more than the intervention group. Some students were unenthusiastic about the flipped-classroom because they were instructed traditionally all their schools' years. The effect size of the flipped-classroom in comparison with the post-intervention mean scores was small. The reason behind this result could be the small number of female students in these classes. Since in Iran, classes are gender segregated, and in this study the number of female students were small, they could focus more on the learning content and work cooperatively. Females were found to have higher self-efficacy and benefit far more from cooperation in the flipped model. The researcher observed they were more involved in flipped model, and they took more advantage of learning communities. This may explain why females in the experiment group showed improvement in their self-efficacy after the experimental instruction when males did not achieve a similar level of success from pre-test to post-test. Consequently, this increased their confidence in the ability to exert control over their own motivation, behavior, and social environment. As students

were not controlled by the teacher in the at-home component of the flipped classroom model, it is possible that male students did not take this new educational approach seriously.

The self-efficacy of females in both groups increased. There was a significant difference between the mean scores before and after the intervention group. It is by virtue of the small number of female students, no significant increase in the effect size of the flipped-classroom was found with the post-intervention mean scores. Although the self-efficacy of both groups increased, the self-efficacy of the female intervention group increased more than that of the intervention group. As can be seen from Figure 2, all of the mean scores of all females were lower than the males. The reasons behind this result could be discussed in terms of the previously mentioned stereotype threat identified by Steele (1997). The insignificant results of the statistical analyses in the current study may come from the general superiority of females over males in the course of language learning, a claim which has been vindicated by Glowka (2014) and also by Dornyei et al. (2006) when he maintains that:

> We do not think that there are many quantitative studies in the L2 literature that examined boys' and girls' attributes or achievement and did not find any salient differences. It seems that when it comes to foreign language learning, boys and girls behave in a strikingly different way (p. 55).

Several limitations to this study need to be acknowledged. Firstly, the sample size was small. The total participants of this study were 66 participants; 30 females and 36 males. In order to generalize the outcomes, it is recommended that further research be conducted with a larger sample, in different courses, and at different levels. Secondly, this study did not evaluate students' motivation and readiness level for learning out of class. Therefore, it is suggested that further investigation and experimentation need to consider these issues. Thirdly, utilising various data collection procedures, in addition to the pre-test and post-test, for example by interviewing students, will provide more information and viewpoints from different perspectives.

Finally, for a greater degree of accuracy on this matter, more videos with rich content should be produced for learners for studying and examining out of the class. As the size of the sample could improve the statistical significance, a larger randomized sample could provide more definite evidence. Since the time allocated to the flipped-classroom was very limited, further work needs to be done in an extension of time. Furthermore, for decreasing the students' bias towards the traditional class, we suggest initiating the intervention at the beginning of the school year and embedding it through more curriculum.

The present study has been carried out for students at an advanced level of EFL. It is recommended that successful studies take into account pre-intermediate, intermediate, and upper-intermediate levels. Although the self-efficacy of the students at various levels might be improved by the flipped-classroom, there was not a significant improvement in the self-efficacy of students at the advanced level in the TEFL classes. Therefore, more research is needed to evaluate the effect of utilizing the flipped-classroom in other fields. Finally, research needs to be conducted on the particular aspects of the flipped-classroom, and identification of factors used in the flipped classroom should be reviewed for student achievement.

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