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Ters Yüz Edilmiş Öğrenmenin Üniversite Düzeyinde Temel Alan Derslerinden Birinde Uygulanması

Burcu Ünal[a, b], Suzan Kavanoz[c]

Özet

Teknolojinin bize sunabileceği avantajlardan yararlanmak ve dersleri sınıf dışına taşımak yaşam boyu öğrenmeyi teşvik etmede önemli adımlar olabilir. Bu bağlamda, mevcut çalışmada, geleneksel anlatım tarzı bir dersi ters yüz öğrenme ortamına dönüştürmenin, öğrencilerin derse yönelik motivasyonunu ve memnuniyetini nasıl etkileyebileceği araştırılmıştır. Bu amaçla, karma yöntemle uygulanan bu çalışma kapsamında, Türkiye'deki bir devlet üniversitesindeki İngiliz Dili Eğitimi öğrencilerine temel alan derslerinden biri ters yüz öğretim modelinde sunulmuştur. Bu model kapsamında ders izlencesi, ders materyalleri ve uygulama etkinlikleri bir öğrenme yönetim sistemi aracılığıyla çevrimiçi olarak öğrencilerle paylaşılmıştır. Sonuçlar, öğrencilerin genel olarak motivasyon ve memnuniyet düzeylerinin oldukça yüksek olduğunu ve ters yüz öğretimin öğrencilerin öğrenme ve performans öz-yeterliği üzerinde önemli bir etkisi olduğunu ortaya koymaktadır. Nitel verilerin derinlemesine analizleri, ters yüz öğrenme sürecinin algılanan yararları ve zayıflıklarının altını çizmiştir. İçerik ve yönergelerin iyileştirilmesi ise öğrencilerin en sık belirttiği gelişim önerisi olarak ortaya çıkmıştır.

Anahtar Kelimeler

Ters yüz edilmiş öğrenme
Motivasyon
Ders memnuniyeti
EdPuzzle

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The Implementation of Flipped-Learning in a Subject-Matter Course at University Level[d]

Abstract

Reaping the benefits that technology offers us and moving the courses to the outside of the class are important steps for fostering life-long learning. Within this context, in this study it was investigated how turning a traditionally lecture-type course into a flipped-learning environment can affect the motivation and satisfaction of the learners toward the course. To this end, within the scope of this mixed-method study ELT juniors at a state university in Turkey took one of the major subject-matter courses in a flipped-instruction model. Within this model, the course syllabus, course materials and practice activities were shared with the students online through a learning management system. The results revealed that the overall motivation and satisfaction levels of learners were quite high, and there was a significant effect of flipped instruction on learners' self-efficacy for learning and performance. In-depth analyses of qualitative data highlighted the perceived benefits and weaknesses of the flipped learning process. Enhancing the content and instruction was found to be the most frequently stated suggestion for improvement by the learners.

Keywords

Flipped learning
Motivation
Course satisfaction
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About Article

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[a] bvarol@yildiz.edu.tr
[b] Dr. Öğr. Üyesi, Yıldız Teknik Üniversitesi/Eğitim Fakültesi, Esenler, İstanbul, Türkiye, 0000-0002-6345-6430.
[c] Doç. Dr., Yıldız Teknik Üniversitesi/Eğitim Fakültesi, Esenler, İstanbul, Türkiye, 0000-0001-7458-4684.
[d] A part from this study was presented at the 12th International ELT Research Conference, Çanakkale, Turkey, 16-17 May, 2022.

Introduction

Thanks to the rapid developments in technology and the prevalence of computers and mobile devices, the flipped classroom model has attracted widespread attention lately as an alternative to traditional university classrooms where lecturers are predominantly active from beginning till the end of the course. It is also given credit for being a more tailored learning environment which encourages learners to take the learning outside the classroom to anywhere anytime which is believed to increase self-efficacy beliefs (Enfield, 2013). Creating opportunities for self-paced learning out of the class, on a very basic level, the flipped model is characterized by learners' studying the course content outside the class, interactive in-class activities mostly consisting of higher-order learning tasks, and engaging pre- or post-class assignments to practice the acquired knowledge and skills (Chen, Hsieh, Huang, & Wu, 2017; Simonson, 2017). In-class application of the new skills and knowledge requires the active participation of learners. When they are actively applying the newly learned content to solve real-life problems, they get to think about what they are actually doing. Such awareness of the learning process and collaborative participation proved to satisfy learners more compared to traditional classrooms where learners are predominantly passive recipients of knowledge (Prince, 2004).

The idea of flipping the classroom in the sense that it is commonly practiced now was initiated by Bergmann and Sams (2012) when they started recording the lectures and posting them online for students to review the content more effectively. They coined this new type of learning as "reversed instruction," "blended learning," or the "inverted classroom" (Bergmann & Sams, 2012). In such learning, students study the main course subject outside the class beforehand, and apply the newly acquired knowledge with the support of their peers and immediate feedback provided by the instructor. In this way, students can study the course content before the class and practice and rehearse complex topics during the class hours. Carrying the lectures outside the borders of the class can enable more engaging and interactive in-class learning. Basically, this new model of learning moves the traditional transmission style teaching outside the classroom, opens room for more active and social activities inside the classroom, and engaged learners more with pre and/or post-class practice activities (Abeysekera & Dawson, 2015). With the study time spent outside the class, teachers can dedicate more time to students who might have been otherwise left behind (Enflied, 2013).

The Flipped Learning Network (FNL, 2014) provided the operational definition of flipped classroom as such:

> Flipped learning is a pedagogical approach in which direct instruction moves from the group learning space to the individual learning space and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter (Flipped Learning Network, 2014, p.1).

Upon cautioning against the assumption that flipped learning and flipped classroom can interchangeably be used, the FNL provides the four pillars of "F-L-I-P". Accordingly, "F" stands for a flexible environment where learners can work individually or as groups according to the timeline they create for themselves whenever and wherever they want. "L" represents the learning culture in which students are actively involved in the construction of knowledge by participating in and evaluating learning which makes it more personal and meaningful. "I"

indicates intentional content which is created by teachers to help learners develop conceptual understanding and procedural fluency in order to optimize the use of classroom time for student-centered and strategic learning. Lastly, "P" is conceptualized as a professional educator whose role is also more active in the Flipped Learning model than the traditional classroom context as being the constant observer, feedback provider and assessor who is dedicated to continual development in his/her professional cycle (Hamdan et al., 2013).

Among the many benefits of flipped learning, Fulton (2012) identifies increased student engagement, more effective use of classroom time, classroom discussion with peers, availability of expert advice from others, and access to instruction at any time, anywhere as the most commonly listed ones. Studies have shown that flipped learning approach not only enhanced students' learning attitudes, but also modified learning cultures into more active, exploratory and collaborative contexts which embrace discussion and sharing with peers (Chao, Chen & Chuang, 2015). By creating active learning environments where learners plan their own learning time and improve their organizational skills so as to preview the material to be able to actively participate in the class, it can also promote self-regulated learning (Lai & Hwang, 2016). The increased interaction between learners and teachers as a result of the active participation of learners in their own learning process paves the way to enhance academic achievement and persistence (Robinson, Scott, & Gottfried, 2019).

Upon a comprehensive review of literature with regard to the advantages and challenges of flipped learning, regarding the advantages Akçayır and Akçayır (2018) put forward six inductive categories which can be classified as learner outcomes, pedagogical contributions, dispositions, interaction, time efficiency, and others. Learner outcomes account for the highest percentage of advantages such as satisfaction, learning performance, engagement, and motivation whereas pedagogical contributions which include flexible learning, individualized learning and enhanced enjoyment take up the second place. A flipped approach is also believed to lead to self-regulated learning and promote learners' regulating their own learning (Zimmerman & Schunk, 2011) in the form of personalized learning and more responsibility taken by the students (O'Flaherty & Phillips, 2015).

Motivation can be a determining factor in flipped classrooms to understand student engagement, and there are mixed results as to learner motivation in the flipped model of education. In some studies, flipped learning was documented to increase student motivation (Shih & Tsai, 2017) while in some others it did not significantly augment student interest (Awidi & Paynter, 2019; Tse, Choi, & Tang, 2019) in relation to traditional learning. Building the study on a motivation perspective, Ha, O'Reilly, Ng, and Zhang (2019) determined three basic cognitive needs to help tertiary level students' learning process, which are listed as sense of competence, sense of autonomy, and relatedness. Their study showed that flipped instruction can meet these needs and learners develop positive feelings toward such instruction. Xiu and Thompson (2020) also used the Motivated Strategies for Learning Questionnaire for measuring undergraduate students' self-efficacy and value beliefs. Through a regression analysis, they tried to investigate how well the scale can predict learners' perceptions of flipped learning. They found an overall positive attitude toward flipped learning adding that self-efficacy is a strong predictor of learning performance and learner perspectives.

In another line of studies, the impact of flipped learning model on motivation as well as achievement has been explored. For instance, Karabatak and Polat (2019) designed an

experimental study to compare the effects of traditional classroom, distance education and flipped learning on learner achievement and motivation levels. It was found that students in the flipped classroom had significantly higher academic achievement levels than the traditional and distance education classrooms. In addition, there was a significant increase in the motivation levels of students in the flipped classroom. Likewise, Bhagat, Chang and Chang (2016) through a pre-and post-test quasi-experimental design investigated how effective flipped classroom environment is on learner achievement and motivation in learning mathematics concepts. They found greater learning gains and motivation for students taught via flipped instruction.

Alongside the motivation, the impact of flipped learning on course satisfaction has attracted much attention. A number of systematic reviews have been conducted on flipped learning and learner perceptions across various disciplines (e.g. Brewer & Movahedazarhouligh, 2018; Evans et al., 2019; Hew & Lo, 2018). For instance, Låg and Sæle (2019) conducted a meta-analytic study on the effects of flipped interventions on learning outcomes and learner satisfaction in comparison to traditional classrooms. Although they found that flipped instructions might improve learning, in general the effect sizes for both academic outcomes and satisfaction were small. However, more encouraging results emerged from some other studies as in Chao, Chen and Chuang (2015) who investigated the effects of flipped learning adjacent to collaborative problem based learning activities on learner attitudes and achievement in a highschool level introductory engineering course. They set up a pre- and post-test quasi-experimental design for 8 weeks and randomly assigned learners to control and experimental groups. The results showed positive effects of a flipped approach on achievement, attitude and learning culture.

For pre-service teacher education, meaningful and realistic learning environments can help teacher candidates to improve their learning and skills as well as regulating the emotions. For example, Graziona (2016) turned the Language Acquisition and Learning course for pre-service language teachers into a flipped classroom. The aim of the course was to introduce the flipped instruction concept to student teachers and help them improve their abilities to prepare flipped lectures. 21 students participated in this qualitative study where classroom observations, informal discussions and post-class survey were used to analyze the learning process. The findings showed that students were in general satisfied with the flipped classes and described them as being more interactive and enjoyable leading to more production and enthusiasm. Similarly, Gonzalez-Gomez, Jeong and Canada (2019) found that flipped learning had a significant impact on the science self-efficacy and attitudes of pre-service teachers.

The results obtained from previous studies so far are inconclusive. While in some studies flipped model leads to students participation and motivation and results in greater learning (Abeysekara & Dawson, 2015; Akçayır & Akçayır, 2018; Chen et al., 2014; Evseeva & Solozhenko, 2015), it is observed to reduce the motivation (Yılmaz, 2017) and even trigger resistance toward the approach (McNally et al., 2017) in some others. Furthermore, the reviewed studies exclusively focused on either motivation (Awidi & Paynter, 2019; Ha et al., 2019; Shih & Tsai, 2017; Tse, Choi, & Tang, 2019) or on satisfaction (Brewer & Movahedazarhouligh, 2018; Evans et al., 2019; Hew & Lo, 2018; Graziona, 2017), without a detailed investigation into the perceptions of learners regarding these two variables. The current study examines students' motivation by measuring task value, intrinsic motivation, extrinsic motivation, control beliefs about learning, and metacognitive self-regulation and

their course satisfaction with respect to content, design, and learning management through both quantitative and qualitative data. The specific research questions posed in this study are:

1. What are the motivation and satisfaction levels of ELT juniors taking a subject-matter course delivered through flipped model?
2. Is there a statistically significant difference in the motivation levels of ELT juniors after taking a subject-matter course through flipped model?
3. What are the perceptions of of ELT juniors regarding taking a subject-matter course delivered through flipped model?

Method

This research used a pretest-posttest mixed-methods approach to determine the effects of flipped learning on learner motivation, course satisfaction and perceptions towards the course. A third-year subject matter course offered in the English Language Teaching department was delivered through the flipped model throughout a 14-week period.

Research Model

The flipped lectures were the screen-recordings of power-point presentations with the voice-over explanations of the slides narrated by the course instructor. To this end, eight video-lectures whose durations ranged between 18 minutes and 32 minutes were created via QuickTime Player screen-recording. Prior to class, each week students were assigned the related video lectures on Edpuzzle in which one question was inserted at a random point to make sure that they actually watched the content. In-class gatherings were shaped by the discussions over the video content and the follow-up practice tasks which required the learners to apply the newly learned knowledge in novel contexts.

This course is a departmental obligatory course for English language teacher candidates, which introduces them to the basic tenets of teaching four language skills along with vocabulary and grammar competencies. Also, within the scope of the course, students were required to prepare and present lesson plans targeting one of the language skills for once throughout the semester. To be able to deliver quality presentations, all students needed to watch the videos carefully, attend in-class discussions and participate in the practice activities which help turn the theoretical knowledge of how to teach into practical applications

Participants

Junior ELT students studying at a state university in Istanbul, Turkey, whose ages ranged between 21-25 participated in the study upon taking their informed consents. Participation in the study was voluntary and they had the right to withdraw from the study any time they wanted. That's why, even though there were 58 students enrolled in the course, only 37 of them were included in this study due to drop-outs during the data collection process. Since this was the first time an inverted learning for this course was applied, the instructor took the first two weeks to introduce the course structure to the students.

Data Collection Tools

The Motivated Strategies for Learning Questionnaire (MSLQ) originally contains two scales: motivation and learning strategies and a total of 81 items to measure college students' "motivational orientations and their use of learning strategies" (Pintrich et al., 1991). The

motivation section aims to reveal value, expectancy and affect reported by learners while the learning strategies section assesses how learners use cognitive, metacognitive and resource management strategies. Pintrich et al. (1991) suggest that "the fifteen different scales on the MSLQ can be used together or singly" (p. 3) As such consistent with the purposes of the current study, five subscales from the motivation (Intrinsic Goal Orientation, Extrinsic Goal Orientation, Task Value, Control of Learning Beliefs, Self-efficacy for Learning and Performance) and one subscale from the learning strategies (Metacognitive Self-regulation) parts were taken. The main purpose of the study is to reveal how flipped learning process affects the motivational levels of learners and their metacognitive self-regulation.For this reason only these parts were extracted from the total scale. There were in total 38 items in this selection and reversed coding procedures were applied for the necessary items. Cronbach's alpha measures were used to determine the overall reliability of the scale and the reliability values of the subscales. The overall reliability of the scale is .92, and the reliability values of the six subscales used in this study range between .71 and .85. All items measure the related construct on a 7-point Likert scale where 1 represents "not at all true of me" and 7 represents "very true of me" responses. A normality check with skewness and kurtosis calculations ensured the normal distribution of data.

The Course Satisfaction was developed by Eryılmaz (2012), and it originally consisted of 58 items distributed among three different scales for different navigation modes. The results from the Kaiser–Meyer–Olkin measure of sampling adequacy (KMO) (0.93) and Bartlett's test of Sphericity ($\chi 2$= 1759.05, sd= 1125, $p<0.05$) indicated that the data set was suitable for factor analysis. (Eryılmaz, 2012). Exploratory factor analysis was used to verify the structure of the scale by Eryılmaz (2012), and three factors emerged which were separated as three different scales; however, only one of them was used for the purposes of this study. The analysis of the scale was run by taking the total score and dividing it by the number of items as a one-factor scale. In total, there were 49 items and the overall reliability of the scale was α= .98 (Eryılmaz, 2012). The items were given on a 5-point Likert scale where 1 means "never" and 5 means "totally agree". Data obtained from the Course Satisfaction scale was normally distributed with a skewness of .349 (SE = .388) and a kurtosis of −.1811 (SE = .759). The values for skewness and kurtosis were accepted to stand within the range for maximum likelihood estimation.

Three questions were posed for the open-ended questionnaire which are about the advantages, disadvantages and the areas for the improvement of flipped learning experience. Even though 37 participants took part in the intervention, 30 participants responded to the open-ended questionnaire. Based on a grounded-theory approach, the analysis of data elicited were read several times by the researchers to ensure the meaning of the content was fully comprehended (Charmaz, 2014). The constant comparison method was used for constructing themes and categories through multiple iterations of coding. In line with the principles of inductive qualitative content analysis (Lincoln & Guba, 1985), emerging categories were obtained from the data during the analysis process. The researchers reached consensus on the overall themes and codes through negotiations.

Data Collection and Analysis

Before and after the implementation of flipped course structure, students filled out the Motivated Strategies for Learning Questionnaire (MSLQ) developed by Pintrich, Smith, Garcia and McKeachie (1991). During the last week of the course, students took the Course Satisfaction scale (Eryılmaz, 2012) with an attempt to measure their satisfaction levels

concerning the overall flipped learning model. Lastly, before the end of term, all participants engaged in flipped learning model were administered an open ended-questionnaire with three questions through Google Form. Students were asked to elaborate on the positive and negative aspects of the course, their experiences and the points that can be improved for further implementations. Even though the questions were formulated in English, the students were free to answer the questions in the language they feel more comfortable.

This mixed-methods study employed a sequential design in which the data from survey items were collected throughout the process and data from the open-ended questions were collected in written form at the end of the intervention. Yet, the analyses of data from both sources were conducted simultaneously. Descriptive and inferential statistics were obtained for the analysis of quantitative data coming from Likert-type sclaes. The qualitative data from the open-ended questions was analyzed to gain a thorough understanding of the students' perceptions about the flipped learning experience. To this end, the researchers followed the guidelines for phenomenological data analysis with the inductive constant comparative method (Glaser & Strauss, 1967), in order to better understand the undergraduates' experiences.

Findings

In order to understand the levels of motivation, metacognitive self-regulation and course satisfaction which are the focus of the first research question, descriptive statistics are obtained. Table 1 presents the results of analyses regarding both scales given across the factors.

Table 1. Descriptive Statistics for Motivation and Satisfaction Scales' after the Treatment

Scales	N	Min	Max	$\bar{X}$	SD
Intrinsic Goal Orientation	37	2.75	6.50	4.90	0.87
Extrinsic Goal Orientation	37	1.75	7.00	4.33	1.35
Task Value	37	2.17	6.83	5.08	1.23
Control of Learning Beliefs	37	3.50	7.00	5.18	0.92
Self-Efficacy for Learning and Performance	37	3.00	7.00	5.20	0.96
Meta-Cognitive Self-Regulation	37	2.67	6.50	4.66	0.94
Motivation Total Scale	37	3.42	6.58	4.89	0.77
Course Satisfaction Scale	37	2.84	4.84	3.75	0.48

In order to observe the levels of motivation and satisfaction upon the flipped instruction, we conducted descriptive analyses of motivation and satisfaction scales administered after the treatment. The results obtained regarding the motivational subscales revealed that students have positive motivational levels towards the flipped class with an overall motivation score of M = 4.89, SD = .82 on a 7.0 scale, and the highest levels belonged to the self-efficay for learning and performance category (M = 5.20, SD = .96). Furthermore, students' satisfaction levels after they were exposed to flipped learning environment were quite high overall (M = 3.75, SD =

0.48), and the highest satisfaction levels were related to satisfaction about course content (M = 3.79, SD = 0.54).

Related to the second research question, in order to find the impact of the intervention on students' motivation levels. Paired samples t-test was calculated (see Table 2).

Table 2. Effects of Flipped Learning on Learners' Motivation Levels

Factors	t(52)	p
Intrinsic Goal Orientation	-.1.072	.291
Extrinsic Goal Orientation	-.155	.878
Task Value	.513	.611
Control of Learning Beliefs	-.803	.427
Self-Efficacy for Learning and Performance	-.2.4	.022*
Meta-Cognitive Self-Regulation	-.617	.541
Total	-.1.069	.292

The results revealed no significant differences except for factor 5 which is related to self-efficacy (p=0.022). Accordingly, learners' self-efficacy for learning and performance showed a significant increase (M= 5.20, SD=.96) when compared to the beginning of the study (M= 4.62, SD=.85).Although the differences are not significant for the remaining factors, the mean values indicate an increase in Factors 1, 2, 4, 5, and 6. Only, in Factor 3 (Task Value) a slight decrease, which is not statistically significant, was observed (see Table 3).

Table 3. Descriptive Statistics for Pre- and Post-motivation Scales

Scales	N	Min	Max	$\bar{X}$	SD
Pre-Intrinsic Goal Orientation	37	1.00	7.00	4.66	1.14
Post- Intrinsic Goal Orientation	37	2.75	6.50	4.90	0.87
Pre- Extrinsic Goal Orientation	37	1.75	6.75	4.28	1.32
Post- Extrinsic Goal Orientation	37	1.75	7.00	4.33	1.35
Pre- Task Value	37	2.17	7.00	5.21	1.05
Post-Task Value	37	2.17	6.83	5.08	1.23
4- Pre-Control of Learning Beliefs	37	3.00	6.50	5.03	0.78
4- Post- Control of Learning Beliefs	37	3.50	7.00	5.18	0.92
Pre- Self-Efficacy for Learning and Performance	37	2.88	6.50	4.62	0.85
Post- Self-Efficacy for Learning and Performance	37	3.00	7.00	5.20	0.96

Pre-Meta-Cognitive Self-Regulation	37	2.50	7.00	4.53	0.84
Post-Meta-Cognitive Self-Regulation	37	2.67	6.50	4.66	0.94
Pre-Motivation Total Scale	37	2.82	6.68	4.70	0.72
Post-Motivation Total Scale	37	3.42	6.58	4.89	0.77

To be able to answer the third research questions, answers given to each open-ended question were analyzed one by one. In order to ensure credibility of the analysis of qualitative data, inter-coder reliability measure was used. For the identification and categorization of the data at the conceptual level, the researchers coded the themes independently and the agreement between the two coders regarding the coding of the data was computed (O'Connor & Joffe, 2020). There was an 84% agreement between coders on 95% of the codes confirming sufficient consistency between researchers (Miles & Huberman,1994).

Concerning the advantages of the flipped learning experience, initially 35 codes were found, but then this number was reduced to 21 in total, and four themes were formed for the first question in the questionnaire (Table 4). Significant statements that reflect the essence of the experience were given verbatim.

Table 4. Perceived Advantages of Flipped Instruction

Themes (Categories)	**Codes**	**f**	**%**
Convenience	Reviewing unclear points	13	12,1
	Opportunity to revisit material	12	11,2
	Easy note-taking	8	7,5
	Easy-to-follow content on videos	2	1,9
	Location flexibility	2	1,9
	Permanent material	2	1,9
Time Efficiency	Time flexibility	13	12,1
	Effective in-class time	8	7,5
	Effective time management for learning process	5	4,7
Pedagogical Contributions	Comfortable learning atmosphere	9	8,4
	Active learner	6	5,6
	Enhanced learning with pop-up questions	5	4,7
	Autonomous learner	4	3,7
	Collaborative learning	3	2,8
Personalized Learning	Adjusted learning pace	9	8,4
	Adjusted learning route	6	5,6
Total		107	100

A major theme articulated by the participants was related to the convenience of materials. Most of the students mentioned the importance of constant availability of the material and stated that flipped learning enables them to reach materials whenever they want. The following quotes echo this theme.

I can start the videos whenever I want. (Participant 8)
I can reach the material whenever I want. (Participant 14)
It offers me the chance to study in a more comfortable place. (Participant 6)
The lessons are always in the flipped learning app. For example, if a student could not attend the class for some reason, he or she can watch it at home without falling behind. (Participant 16)

Opportunity to revisit the material was another perceived benefit of flipped learning experience. Most of the students explained the advantages of flipped learning in terms of revisiting the materials.

Watching the video again and again is one of the benefits of the flipped learning. (Participant 15)
It offers us chances to watch the video again and again (Participant 20)

Students also mentioned that they take their notes better and explained that they can use other strategies like taking screenshot of the video when there is something important or while searching for something important.

I can take my notes by watching. (Participant 1)
I could pause the videos whenever I want and take notes as much as I want. (Participant 9)
I can get chances to take my notes by stopping or running back the video. (Participant 19)
Being able to start videos whenever I want, take screenshots where I find important and start watching from the subject I want. (Participant 22)

Time Efficiency was another theme that appeared frequently. Students mainly focused on provision of more efficient class time in flipped learning environment.

Since we watched the lessons at home, our content load decreased. (Participant 7)
We have time left for review of the content. (Participant 20)
They also indicated that this model allowed them more time for practice:
Another benefit is that there is a plenty of time for practice. (Participant 21)
We have more time left for practice. (Participant 24)
It allows me to study at a more comfortable and relaxed environment (Participant 8)

The third theme emerging from the written views of learners was the pedagogical contributions of flipped learning. Under this category, comfortable learning environment created by flipped model was the most frequently repeated benefit:

I can understand better because I attend the lesson at home. (Participant 28)
I can watch the videos whenever I want. (Participant 29)

Some students stated that this method allows them to be more responsible for their own learning which might enable them to claim the 'ownership' of their learning:

It is a good method to gain responsibility of learning. (Participant 10)
I think it develops 'independent study' skill. (Participant 13)
Questions that are asked help me learn. (Participant 12)

Some students explained the benefits of the method in terms of collaboration and interaction opportunities. They felt they were more engaged in the learning process in which they can improve their learning performance and increase their knowledge.

There are activities offering more interaction between a student and the teacher or among students. (Participant 27)
It offers collaboration. (Participant 18)
I can take part in the lesson. (Participant 5)

In terms of personalized learning, students mentioned that such an environment allowed them to adjust both their learning pace and their learning route. Many students explained the benefits of learning in a more flexible environment especially when they had difficulties in understanding something:

It offers me chances to understand better by running the video back when I encounter difficulties with a topic. (Participant 11)
I can look at the points that I don't understand again and again. (Participant 1)
It allows me to pause and take notes, watch the places that I couldn't understand as many times as I wanted and rewind whenever I want. (Participant 21)

Another question in the open-ended questionnaire was about the disadvantages/ weaknesses of flipped learning perceived by the students. After the careful examination of written data, 4 themes emerged concerning this question which were technical challenges, content and environment-related challenges, interaction problems, and individual student challenges (see Table 5).

Table 5. Perceived Disadvantages of Flipped Instruction

Themes (Categories)	**Codes**	**f**	**%**
Technical challenges	Problems related to sound and video quality	4	6,4
	Insufficiency of technical infrastructure	2	3,2
Content and Platform-related	Lack of variety in presentation mode	8	12,9
challenges	Lack of reinforcement	8	12,9
	Inconsistency between videos and in-class activities	2	3,2
	Difficult-to-follow structure	5	8
Interaction Problems	Limited in-class time and discussions	4	6,4
	Insufficient teacher facilitation due to poor platform interface	12	19,3
	Limited opportunities for feedback	8	12,9
	Collaborative learning	3	2,8
Individual Student-Related	Lack of motivation	5	8
challenges	Lack of self-discipline	4	6,4
Total		62	100

Some students pointed out the technical challenges as one of the problems related to flipped learning included the limitations related to technical aspects:

The sound of the video is of poor quality. (Participant 25)
Some of the videos are long and difficult to listen to. (Participant 5)
The videos were created through sound recording on the screen which made the method mechanical and inadequate. (Participant 9)

There were also content and platform-related challenges, which turned this process into a somewhat unsatisfactory experience for some learners:

I have some doubts about the retention of the content. (Participant 28)
Students may not understand well. (Participant 8)
It was difficult to follow it from the book as which units belonged to which video was not clear. (Participant 9)
There was no practice after the topics explained. (Participant 2)
It causes distraction after watching long videos. (Participant 11)
I think that the number of the questions in different parts of the video is not sufficient. (Participant 13)

Another set of problems related to flipped learning were attributed to individual learner characteristics such as attention problems, lack of motivation, decreased self-discipline, and as such:

Depending on the environment watched, it causes distraction. (Participant 1)
Sometimes I couldn't feel motivated to watch the videos. (Participant 13)
We have the opportunity to postpone watching the videos, thinking that it is not compulsory. (Participant 4)
I am accustomed to learning in the classroom, so I have encountered adaptation problems. (Participant 28)

As an answer to the question in what ways the flipped instruction could be improved to maximize its potential, three main categories and 14 codes related to these themes emerged from the detailed reading of data (see Table 6).

Table 6. Suggestions by Students to Improve the Flipped Instruction

Themes (Categories)	**Codes**	**f**	**%**
Content-related and instructional	Increasing number of comprehension check questions	4	9,3
improvements	Improving material quality	3	6,9
	Offering more practice opportunities	4	9,3
	Offering Q & A opportunities	3	6,9
	Providing a revision or summary of the materials	2	4,7
	Providing comprehensive instructions	3	6,9
	Using flipped learning as a secondary resource	2	4,7
Platform-related	Improving video/sound quality	5	11,6
improvement	Offering more control options for materials	2	4,7
	Increasing accessibility to materials	3	6,9

	Providing teacher and peer feedback opportunities	4	9,3
Interaction-related	Promoting collaboration and interaction	2	4,7
improvements	Tracking students' motivational and academic progress	4	9,3
	Encouraging participation and attendance	2	4,7
Total		43	100

Three categories emerged from the students' answers to optimize the flipped learning experience: content- related and instructional, platform-related and interaction-related improvements. Content-related and instructional improvements include increasing number of comprehension check questions, improving material quality, offering more practice opportunities, offering Q & A opportunities, providing a revision or summary of the materials, providing comprehensive instructions, using flipped learning as a secondary resource.

The teacher can monitor her/his students every week. (Participant 9)
Whether the videos have been watcher or not can be checked every week. (Participant 11)
It should be used as a study aid rather than the main method. (Participant 16)
One part of the lesson can be taught in this way and the other part can be implemented in the classroom. (Participant 26)
In order to attract the students' attention, the teaching in the video can be livelier and more eager. (Participant 5)
It may have been more useful to see more examples in the videos. (Participant 17)

The lack of immediate access to the course instructor while watching the videos and the unavailability of instant interaction features in the platform were listed as the weaknesses of the flipped learning experience. Therefore, students articulated platform-related technical improvements as the second most frequently mentioned improvement suggestion:

If the teacher asks questions in the online environment, s/he can give feedback to the students. (Participant 8)
The quality of sound can be increased (Participant 25)
The videos should include the sound and video, and the slide screen with the teacher's image. (Participant 9)
There should be a part in which the students can ask their questions on the platform. (Participant 31)

Lastly, interaction-oriented improvements were given which consist of promoting collaboration and interaction, tracking students' motivational and academic progress, encouraging participation and attendance.

Students should be encouraged to ask questions. (Participant 23)
The teacher can encourage the students to engage in the lessons. (Participant 27)
The number of the questions in the video can be increased. (Participant 18)

Overall, when the total frequencies are taken into account, students seem to be rather pleased with this learning experience although there are some inherent and external problems which can be easily eliminated with the suggestions provided again by the learners.

Discussion, Conclusion and Implications

Within the changing spectrum of education, flipped model of learning has been recognized globally by many educators to respond to the transformed needs of teachers and learners. To this end, the current study set out to explore the effects of the flipped learning approach on student teachers' motivation and satisfaction levels after receiving one of the departmental obligatory courses in flipped learning model over the course of one semester.

The first research question examined what the motivation and satisfaction levels of learners are upon flipped instruction. The analyses revealed that learners had enhanced motivation levels when the instruction followed a flipped model which provided support to previous studies (e.g. Chang & Hwang, 2018; Davies, Dean & Ball, 2013; Girgin & Cabaroglu, 2021; Pozo-Sanchez et al., 2021), and satisfaction- being in direct relationship with motivation- also proved to be quite high which is again consistent with earlier work (Aguayo Vergara et al., 2019; Enfield, 2013; Gilboy, Heinerichs & Pazzaglia, 2015; McCarthy, 2016). Karaoglan Yılmaz (2021), in particular, found that adding questions into video content and some other support tools into the system led to enhanced course satisfaction which in turn increased engagement and motivation. Likewise, in the current study, students' course satisfaction was quite high, especially satisfaction with the course content, thanks to the inverted learning model offering the learners a flexible and self-paced learning experience.

The second research question concerned whether the flipped learning model had a direct impact on learners' motivational levels and metacognitive self-regulation via measuring these constructs right before and after the flipped instruction period. The results indicated that as a result of being exposed to flipped learning, students showed higher motivation levels towards learning which reveals a positive impact resonating with the previous research such as Lucke, Dunn and Christie's (2017) work where a flipped classroom instructional format demonstrated an increase in students' motivation, engagement and active learning practices.

In our study rather than focusing on learning motivation in general, we explored specific motivation constructs such as intrinsic goal orientation, extrinsic goal orientation, task value, control of learning beliefs, self-efficacy for learning and performance, and meta-cognitive self-regulation. We found out that students' self-efficacy for learning and performance perception increased significantly after the intervention. Although statistically significant findings were not obtained for the other constructs, there was a substantial increase in intrinsic goal orientation, extrinsic goal orientation, control of learning beliefs, and meta-cognitive self-regulation levels. An interesting result, despite being statistically nonsignificant, was the decrease in task value perceptions. Task value beliefs are defined as "judgments of how interesting, useful, and important the course content is to the student" (Garcia & Pintrich, 1996, p.12). In other words, it refers to the degree to which the participants perceive that the academic task is worth pursuing and in the current study, and this belief decreased slightly.

Regarding the third research question, which centers on learners' perceptions of the flipped learning experience, overall, perceived benefits of flipped learning outweigh its perceived drawbacks. The biggest advantage of such instruction lies in its' being convenient and time efficient. Furthermore, the learners seemed to benefit from the opportunities to revisit the materials thanks to its ubiquitous, comfortable, easy to take notes nature. Similar to Sosa Díaz, Guerra Antequera and Cerezo Pizarro's findings (2021), our learners are mostly content with flipped instruction as it allows for the practical application of theoretical contents, and self-

paced learning in learners' comfort zone (Ramirez, 2018; Zainuddin & Perera, 2018). Consistent with the previous works, our students also believed that this learning model enabled individualized learning where they can act autonomously to determine the pace and route of their learning (Wanner & Tanner, 2015; Shyr & Chen, 2018). It was also found to enhance cooperation and collaborative learning among students corroborating Karabulut-Ilgu, Jaramillo Cherrez and Jahren (2018); meanwhile, it was observed to lead to more effective use of class time (Inan, Balakrishnan & Refeque, 2019). Furthermore, through creating an active learning environment (Lucke et al., 2017), it gave the learners the chance to review the unclear points by revisiting the material as much as they want.

Disadvantages were related to the technical challenges and interaction problems originating from the unavailability of an interactive medium in the online platform between the students and the teacher allowing for a spontenous communication. The students in Fazal and Navarrete's (2019) study were also conservative towards flipped courses in that they leave no room for face-to-face interactions that they were accustomed in traditional classes. Since this type of learning is highly personalized, one of the most occurring themes as a disadvantage was the individual student challenges. Some students experienced difficulty in terms of motivating themselves and self-discipline, namely acting autonomously and self-regulating their learning. This finding lends support to studies revealing that this type of learning, highly dependent on self-regulation abilities, is especially difficult for learners who are accustomed to lecture-centered classes (Hew & Lo, 2018; Hoshang, Hilal & Hilal, 2021; Rasheed, Kamsin & Abdullah, 2020).

Generally, there were positive opinions about the flipped model, therefore comparatively fewer suggestions for improvement were offered by the students. The most frequently stated suggestion was related to enhancing the content and instruction and the least articulated suggestion was in relation to the interaction which implies that the overall satisfaction with the inverted learning in terms of interaction was quite high. Aligning with the opinions of "the flip resisters" (McNally et al., 2017)- students who are unwilling to embrace active methodologies diverting from traditional teaching methods- more teacher-centered adaptations such as offering Q & A opportunities, using flipped learning as a secondary source or providing a summary or revision of the materials were among the given suggestions to improve the model by the participating students.

On the whole, our study revealed that flipped learning can be a motivating, satisfactory and positive experience for college learners. In this sense, our findings provide insights into a variety of pedagogical implications. It is evident that the flipped learning model has the potential to enhance learner motivation and lead to course satisfaction by increasing learners' sense of autonomy and self-regulation of learning. However, there is still some resistence by some learners to adapt to this type of learning, as such in order to fully realize its potential, it is necessary to train and inform the students about more student-centered methodologies. To enable its acceptance by the learners requires persistence and diligence on the part of educators as it is still a relatively under-practiced learning model.

As one of the initial applications of flipped learning model at the instution, we implemented this study with a small number of learners for only one semester without making substantial changes in the flow of lessons. In order to understand the learning gains and the impact of the treatment on students' achievement, a randomized control vs. experimental group-design would lead to safer and sounder claims about the model. Furthermore, contribution of more

participants across different fields of study would make the findings more generalizable. Our study also revealed that the platform is a significant contributor to the success of the flipped learning model, that's why we suggest that the practitioners utilize more user-friendly and interactive platforms in the future. A platform which allows the learners to leave comments or ask questions directly to the lecturer could enhance the learning gains of the intervention.

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