Incorporating Flipped Model in Learning English Grammar: Exploring EFL Students' Intrinsic Motivation and Attainment

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Abstract—**Flipped Classroom (FC) is an educational approach that has gained considerable attention. It incorporates technology to deliver direct instruction outside of class, while in-class time is limited to contextualized collaborative activities. On the other hand, intrinsic motivation (IM) is a fundamental objective for educators, as it helps learners pursue learning throughout the year. It is the internal drive to engage in learning activities for the sake of personal fulfillment and satisfaction. Recognizing the vital role of IM, the paper investigates the efficacy of flipped learning (FL) in raising students' IM in grammar courses within the framework of Self-Determination Theory (SDT). A total of forty-one (n= 41) Saudi EFL university students were normally distributed into two groups. The experimental group receives FC instruction, while the control group is taught using traditional explicit instruction. A pretest and a posttest were administered to both groups. Furthermore, a questionnaire was further distributed to the experimental group. The findings of the present quasi-experimental study demonstrate that FC enhances students' IM by providing a student-centered, supportive, positive, and collaborative technology-based environment that promotes their language attainment and satisfies their basic psychological needs for autonomy, competence, and relatedness. Finally, to ensure its successful implementation, it is recommended that teacher training and thorough content planning are vital before implementing FC.**

Index Terms—**flipped classroom, intrinsic motivation, university students, EFL, grammar attainment**

I. INTRODUCTION

In the field of language education, fostering IM among learners is a key objective for educators (Al-Osaimi & Fawaz, 2022). IM refers generally to an individual's internal drive to engage in an activity for its inherent satisfaction and personal fulfillment. How motivated a person is depends on why and how they are learning the language. According to Busse and Walter (2013), the decrease in students' efforts to participate in language learning during the year relies heavily on the decreasing levels of IM, which were attributed to the lack of opportunities to practice language. Therefore, to overcome the limits of traditional teaching approaches and increase students' motivation, more learner-centered teaching approaches have emerged recently.

On the other hand, the advent of technology has made radical changes in the field of education, as it offers the advantage of accessibility anytime and anywhere, as well as a large range of materials that accommodate various learning styles (Pudin, 2017). According to Alotebi (2016), it is an effective way of providing learners with plenty of opportunities to search, receive, and communicate with peers as well as with native speakers in an enriched and effective manner. The realization of such a fact led researchers to incorporate technology in foreign language classrooms, creating what is known as blended learning.

One of the shapes of blended learning classrooms is FC, which flips the typical structure of a classroom. It involves moving direct instruction, such as lectures or grammar explanations, outside the classroom through pre-recorded videos or other resources. Class time is then dedicated to active learning activities, such as discussions, group work, and application exercises (Pudin, 2017). This approach is mainly a student-centered approach, allowing students to engage with the content prior to class and fostering collaborative and interactive learning experiences. It aims to enhance student engagement and promote deeper learning.

II. LITERATURE REVIEW

A. Flipped Classroom (FC)

FL is one form of blended learning where technology is employed along with conventional practices. FCs reverse traditional classroom activities by giving students access to online readings or other resources they might study before class. This makes it possible to employ class time for tasks like problem-solving, discussions, discourse, and analysis. This strategy aims to achieve profound and significant learning (Pudin, 2017). As a result, the role of the teacher in the classroom has changed to that of a facilitator, an instructor, and a resource, while the role of the learners has changed to

that of partners and recipients (Aldaghri, 2023). This method enables students to study at their own pace, revisit challenging material (Alharbi & Alshumaimeri, 2016; Ivanytska et al., 2021; Vuong et al., 2019), engage in self-directed learning, and improve communication (Bezzazi, 2019). The benefits of using an FC in a grammar class include more effective active learning, a stronger teacher role, better time management, increased peer learning, greater control over content delivery, the ability to monitor student assimilation of knowledge, and on-demand learning (Pudin, 2017; Aldaghri, 2023).

B. Intrinsic Motivation

IM is an effective and beneficial way to learn a language. Research shows that intrinsically motivated foreign language students tend to use the target language more "independently, creatively, and personally" (Alotaibi, 2016, p. 52). When students are intrinsically motivated, they are more likely to actively participate, explore, and take ownership of their learning process (Khazaie & Mebash, 2014; Alotaibi, 2016). IM also contributes to long-term language learning success and autonomy. They are likely to spend more time on learning and perform higher in language proficiency (Shabani, 2017).

IM basically refers to the inner desire and drive to engage in an activity for its own inherent satisfaction and enjoyment, without relying on external rewards or pressures. In an EFL context, it refers to the students' inherent interest, curiosity, and enjoyment in learning the target language. Deci and Ryan (1985) proposed a continuum of different types of motivation, where amotivation is the lowest degree, followed by extrinsic motivation, and ending up with IM as the highest degree. Amotivation refers to the absence of motivation. In other words, individuals tend to believe that their behavior is a result of forces beyond their control and, consequently, feel incompetent and incapable of reaching the desired outcome. Extrinsic motivation is related to the accomplishment that results from a behavior meant to satisfy an external demand. It has four types: external regulation, introjected regulation, identified regulation, and integrated regulation. IM refers to accomplishing a task freely and willingly without any extrinsic coercion or pressure. Supporting the theory, Vallerand, Fortier, and Guay (1997) proposed three types of motives that contribute to IM; IM to know, IM to accomplish, and IM to experience stimulation. The first one, IM to know, is manifested in the individual's motivation to perform a certain task for the pleasure resulting from learning something new. The second one, IM to accomplish, is displayed in the individual's engagement in an activity to master a challenge or create something. The third one refers to the individual's performance of a task to experience pleasure as well as fun and joy.

Several researchers have asserted that several factors influence learners' IM. Giving learners a sense of autonomy and letting them make decisions about their education can improve their IM (Ebata, 2008; Oxford & Shearin, 1994). Also, activities that allow students to choose topics, resources, or learning assignments depending on their preferences and interests might help achieve this. Furthermore, relevance and authenticity, which refer to making connections between language learning and personal interests, relevant circumstances, and real-world situations, can boost IM (Alotaibi, 2016; Noels et al., 2000). Students are more likely to be engaged and motivated to learn when they believe that language instruction is authentic and relevant. Moreover, competence and mastery, giving pupils the chance to feel competent and in control of their language learning, encourages IM (Ebata, 2008). This can be accomplished through offering pertinent challenges, helpful criticism, and recognition. Furthermore, promoting students' interest in and enjoyment of their education is crucial for fostering IM. Students' interest and satisfaction in studying EFL can be increased by including interesting and varied instructional approaches, multimedia materials, and interactive exercises (Alotaibi, 2016).

C. Self-Determination Theory (SDT)

The present study clearly employed SDT as its theoretical framework. The theory of self-determination focuses on human motivation as the natural tendencies that drive a person to actively engage within a certain social context, and the degree to which their behaviors are volitional or self-determined (Maherzi, 2011). It is based on three basic psychological needs, namely autonomy, competence, and relatedness. In the context of an FC, the need for autonomy refers to the need for self-determination, where students feel a high degree of control over their learning experience and have a great deal of choice in their learning path. The need for competence focuses on the individual's belief that they can be competent in learning activities, and finally, the need for relatedness refers to the sense of belonging that students feel towards their peers, teachers, and the overall learning community (Mai & Liu, 2021).

The first examination of SDT in the language learning context was conducted by Noels et al. (2000). They surveyed 159 participants at a French-English bilingual university who were English speakers and were learning French as their second language. The study used a questionnaire with three sections to evaluate the participants' learning orientations. The study found that individuals who have high levels of IM tend to be more involved in learning. It concludes by suggesting that fostering IM requires creating supportive classroom environments that encourage autonomy, competence, and relatedness and providing interesting and challenging learning activities that promote personal satisfaction, enjoyment, interest, and inherent curiosity in language learning.

D. Empirical Research on FL and IM

The use of technology-based tools for learning foreign and second languages has become more frequent in recent years. Numerous studies have examined the effects of such tools in developing various language skills and subskills. IM

has been studied among other aspects in relation to pronunciation (Yousofi & Naderifarjad, 2015; Shabani, 2017), strategic use of language (Khazaie & Mebash, 2014), or involving non-majoring university students (Zhou, 2012). Linking SDT to blended learning, Mai and Liu (2021) adopt SDT as their theoretical framework to analyze the impact of the FC model on students' internal needs throughout the learning process. SDT is a theory of human motivation and personality .The study found that the FC paradigm can satisfy students' psychological needs and raise their level of learning pleasure. However, to successfully implement the model, consideration must be given to its challenges and potential pitfalls, as well as the requirement for educational institutions to offer sufficient infrastructure and support to ensure its successful integration into college learning experiences. Likewise, Alotaibi (2016) discussed the impact of blended learning on students' motivation in his article. Within the framework of SDT, blended learning can be a means to promote students' autonomy by extending the use of technology, resulting in higher levels of language proficiency. He points out that teachers need to pay attention to the fact that not all students have the same level of technology skills, which may constitute a limitation in the implementation of blended learning in EFL classroom.

Afzali and Izadpanah (2020) shed light on the relationship between FC and motivation and engagement in English grammar for elementary and upper-intermediate students. In their quasi-experimental study, Afzali and Izadpanah (2021) attempted to determine the effect of FL on learners' engagement and motivation. According to the study's findings, the FL approach increases learners' motivation and engagement. The study suggests using FL as a productive teaching strategy to raise students' motivation and involvement.

In the same vein, specifically within the context of Saudi Arabia, Ibrahim, Ahmed Ali, Al-mehsin, and Alipour (2022) investigated the impacts of FL, a type of technology-based instruction, on Saudi Arabian high school students' motivation, anxiety, and attitude toward language learning. The research involved selecting 58 intermediate-level students from a high school in Riyadh, who were then assigned randomly and equally to either the flipped or traditional instruction class. The researchers used pre- and post-tests of anxiety and motivation questionnaires, along with feedback questionnaires from the flipped class, to measure the impact of the intervention. Results showed that the flipped class outperformed the traditional class in both motivation and anxiety posttests. The outcomes suggest that implementing FL instruction can increase motivation and alleviate learning anxiety among EFL students. Additionally, the students in the flipped class showed positive feedback on the flipped instruction, indicating that they valued it highly. This finding could encourage EFL teachers to incorporate technology to enhance learning outcomes.

Similarly, Oraif (2018) surveyed 55 EFL female undergraduate learners in Saudi Arabia, comparing flipped and non-flipped teaching methods. A mixed-method approach was used, with sociocultural theory underpinning the FC design. The results showed that the FC group improved writing outcomes and self-esteem, satisfying psychological needs for competence, relatedness, and autonomy more than the non-flipped group. The study also found a positive correlation between IM, learning outcomes, and the supportive environment.

With the previous background considered, it is obvious that IM has its key role in the learning process. Therefore, it needs to be measured in FC to see how it affects students' learning and to determine the success of using FC in teaching grammar. However, academic research into student IM and the effectiveness of a FC in an EFL context is relatively overlooked at present. Moreover, Williams and Burden (1997) stated that IM is a culturally bound matter. It follows that the findings of other research cannot be generalized to all contexts. To the best of the author's knowledge, no study has investigated university EFL students' IM in a grammar FC, and particularly in the context of Saudi Arabia. Therefore, the present study aims to investigate the IM of Saudi EFL learners' majoring in English in a grammar FC. It attempts to answer the following questions:

1- Does using FC affect students' IM to learn grammar?
2- Is there any relationship between the students' motivation in FC and their attainment in grammar?
3- How does FC foster students' IM to learn grammar?

III. METHODOLOGY

Using a mixed-method approach, this study conducts quantitative and qualitative analyses to assess the effectiveness of the FL model on students' motivation and to investigate the relationship between IM and grammar attainment. The quantitative section looks at the students' IM in the pre- and post-test and how it relates to their language performance, while the qualitative section looks at their perspectives on IM in FC. Sixty-four students out of a total of 110 students volunteered to take part in the study. However, only 41 participants (21 in the control group and 20 in the experimental group) completed all the experiment's requirements. All the students are Saudi female EFL students between the ages of 19 and 20. They were in college's first year. Their English level was upper intermediate, according to the placement test required by the university for enrollment in the College of Languages and Translation. Aside from the required grammar course, they were also taught the four basic English language skills of listening, speaking, reading, and writing.

Study design

This research is part of a larger project on the use of the FC in grammar instruction. The participants' consent was obtained prior to the start of the study. A pretest and a posttest were given to both the experimental and control groups to investigate the students' IM in the FL model. Prior to the start of the experiment, both groups completed a questionnaire distributed via Google Forms. Following the pretest, the students in the control group received only traditional, explicit teaching in class. Meanwhile, the FC was used on the experimental group for twenty-one lectures

(50 minutes each) over the course of eight weeks. The experiment was carried out in a grammar course that concentrated on the past progressive, simple past tense, and present perfect. The tenses mentioned above were purposefully chosen to be the focus of the FC because students frequently get confused about how to use each of them correctly. Microsoft Teams, an online learning platform, was used to send lesson materials, assess students' performance, submit homework, and receive feedback.

According to the FL model, the students in the experimental group are provided with three links to watch at home. These links are video clips that provide an explanation for the tense in focus and several contextual examples. Two of these links have the same information but in different teaching styles, and the students are free to choose one. The third one includes a representation of the tense in focus, e.g., a story or a conversation. To ensure that they watched the videos attentively, the students are asked to answer some questions about the videos as their homework. In that way, the students come to the lecture prepared to answer questions and ask for clarification when needed. On the other hand, most class time is allocated to several contextualized communicative group activities where the students are competing within their groups and with other groups. The activities include storytelling, turn-taking, guessing, and role-playing. At the end, they are asked to draw a mind map summarizing each chapter and providing examples to ensure their full understanding of the grammatical tense in focus.

Upon the completion of the experiment, both groups took a posttest. Furthermore, to explore their perceptions towards FL, the participants in the experimental group received a questionnaire that had closed-ended questions and ended up with some open-ended questions. The open-ended questions of the questionnaire were adopted from Pudin (2017), while the closed-ended questions were originally an IM scale adopted from Oraif (2018). The scale consisted of 11 items using a 5-point Likert scale (i.e., strongly agree, agree, neutral, disagree, strongly disagree). The items are subdivided into: 1) items related to knowledge, i.e., the sense of performing an activity for the sake of acquiring new knowledge (Items 1-3); for instance, 'For the pleasure I experience when I learn more about how to write a good essay'; 2) items related to stimulation, i.e., the sense stimulated by performing an interesting task (Items 4-7), e.g., 'Because I believe the English writing course is stimulating'. Items related to accomplishment, i.e., the sense of mastering a task (Items 8-11), such as 'For the pleasure I experience when I can work out difficult writing activities.' At the end of the scale, there was an open-ended question focusing on getting a comprehensive understanding of the students' perceptions about FL in terms of IM. The questionnaire took 10 minutes to be electronically filled out and submitted through Google Forms. Throughout the process, the data remained confidential and anonymous.

The pre- and post- test was face-validated by three specialists in the field, and their comments were taken into consideration before applying the test. To evaluate the content validity of the questionnaire, it was reviewed by two specialists in the field. As for the reliability of the questionnaire, Alpha Cronbach is used, and it was 0.965.

After collecting the data, the quantitative data was analyzed using Statistical Package for Social Sciences (SPSS) software version 26 after it had been coded. The qualitative data, on the other hand, were analyzed in terms of frequency. To ensure the normal distribution of variables, the Shapiro-Wilk test was conducted.

TABLE 1
TESTS OF NORMALITY

test	Group	Shapiro-Wilk		
		Statistic	do	Sig.
Pretest	Control Group	.884	21	.018
	Experimental Group	.936	24	.130
Posttest	Control Group	.937	21	.188
	Experimental Group	.953	24	.310

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

The previous table shows the results of the first assumption (the normality assumption). In this table, the normality assumption for perceived usefulness is evaluated using Shapiro-Wilk tests. From the previous table, it is obvious that the data follow a normal distribution, and, therefore, parametric tests will be used: Independent Samples Test and Paired Samples Statistics. Normally distributed data were presented in terms of means and standard deviation (SD). However, qualitative data from open-ended questions was coded in Excel and presented in terms of percentage and frequency.

IV. RESULTS

A. Does Using FC Affect Students' Motivation to Learn Grammar?

TABLE 2
WILCOXON SIGNED RANK FOR PRE-EXPERIMENT QUESTIONNAIRE

	Group	N	Mean Rank	Sum of Ranks	Wilcoxon W	Z	P value
Pre-Experiment Questionnaire	Control Group	21	22.95	482.00	379.000	-1.072	0.284
	Experimental Group	20	18.95	379.00			
	Total	41					

From the data in the previous table, it is shown that there are no statistically significant differences at the level of significance (0.05) in the questionnaire between the control group and the experimental group (p >0.05).

TABLE 3
WILCOXON SIGNED RANK FOR POST- EXPERIMENT QUESTIONNAIRE

	Group	N	Mean Rank	Sum of Ranks	Wilcoxon W	Z	P value
Post- Experiment Questionnaire	Control Group	21	16.50	346.50	346.500	-2.468	0.014
	Experimental Group	20	25.73	514.50			
	Total	41					

From the data in the previous table, it is clear that there are statistically significant differences at the level of significance (0.05) in the questionnaire between the control group and the experimental group, in favor of the experimental group (p < 0.05).

TABLE 4
WILCOXON SIGNED RANKS TEST FOR CONTROL GROUP

		N	Mean Rank	Sum of Ranks	Z	Asim. Sig. (2-tailed)
Post- Experiment Questionnaire - Pre-Experiment Questionnaire	Negative Ranks	11[a]	10.00	110.00	-.191-[b]	0.848
	Positive Ranks	10[b]	12.10	121.00		
	Ties	0[c]				
	Total	21				

From the data in the previous table, it is clear that there are no statistically significant differences at the significance level (0.05) in the questionnaire in the pre- and post-measurements of the control group (p > 0.05).

TABLE 5
WILCOXON SIGNED RANKS TEST FOR EXPERIMENTAL GROUP

		N	Mean Rank	Sum of Ranks	Z	Asymp. Sig. (2-tailed)
Post- Experiment Questionnaire - Pre-Experiment Questionnaire	Negative Ranks	2[a]	8.75	17.50	-3.268-[b]	0.001
	Positive Ranks	18[b]	10.69	192.50		
	Ties	0[c]				
	Total	20				

From the data in the previous table, it is clear that there are statistically significant differences at the significance level (0.05) in the questionnaire in the pre- and post-measurements of the experimental group in favor of the dimensional measurement (p< 0.05).

Through Tables 2-6, it was found that the use of FCs positively affects students' motivation to learn grammar.

TABLE 6
MEAN AND STD. DEVIATION FOR CONTROL GROUP AND EXPERIMENTAL GROUP

Item	Control Group				Experimental Group			
	Pre-Experiment Questionnaire		Post- Experiment Questionnaire		Pre-Experiment Questionnaire		Post- Experiment Questionnaire	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
For the pleasure I experience when I learn more about how to form a correct structure.	4.10	1.758	4.24	1.578	4.55	1.820	5.40	1.142
For the satisfied feeling I get on finding out about different types of tenses and grammatical structures.	3.90	1.868	4.10	1.513	4.05	1.905	5.10	1.021
Because I enjoy the feeling of learning more about various components of different types of tenses.	3.62	1.564	4.19	1.569	4.05	1.986	5.05	0.887
Because I have lots of fun in the English grammar class.	4.14	1.526	4.05	1.564	4.20	1.704	5.20	1.056
Because I like to have the teacher's feedback on my grammar.	4.29	1.848	4.10	1.700	3.80	2.016	5.55	0.759
Because I believe the English grammar course is stimulating.	3.90	1.729	4.05	1.746	4.80	1.322	5.15	0.875
Because I feel good when I form structures properly in English in the class.	4.33	1.853	4.90	1.546	4.25	2.023	5.50	0.827
For the positive feeling I experience when I communicate my ideas to my classmates in the grammar class.	4.00	1.871	4.05	1.936	4.15	1.137	4.45	1.317
For the pleasure I experience when I can work out difficult grammar activities.	4.14	1.740	4.24	1.786	3.95	2.012	5.10	1.294
For the satisfaction I feel when I understand a difficult idea related to grammar.	4.43	1.805	4.86	1.652	4.30	2.130	5.20	1.056
For the positive feeling I get when I am able to modify my structures.	4.43	1.859	4.33	1.653	3.55	2.012	5.35	0.875
Mean	4.12	1.553	4.28	1.391	4.15	0.895	5.19	0.798

B. Is There Any Relationship Between the Students' Motivation in FC and Their Attainment in Grammar?

TABLE 7
RELATIONSHIP BETWEEN THE STUDENTS' MOTIVATION IN FC AND THEIR ATTAINMENT IN GRAMMAR

	N	Mean	Std. Deviation	Pearson Correlation	P value
attainment in grammar	41	8.17	1.595	.328*	.036
students' motivation	41	4.72	1.216		

From the data in the previous table, it is clear that there is a relationship between the students' motivation in the FCs and their attainment in grammar (R=0.328, p<0.05).
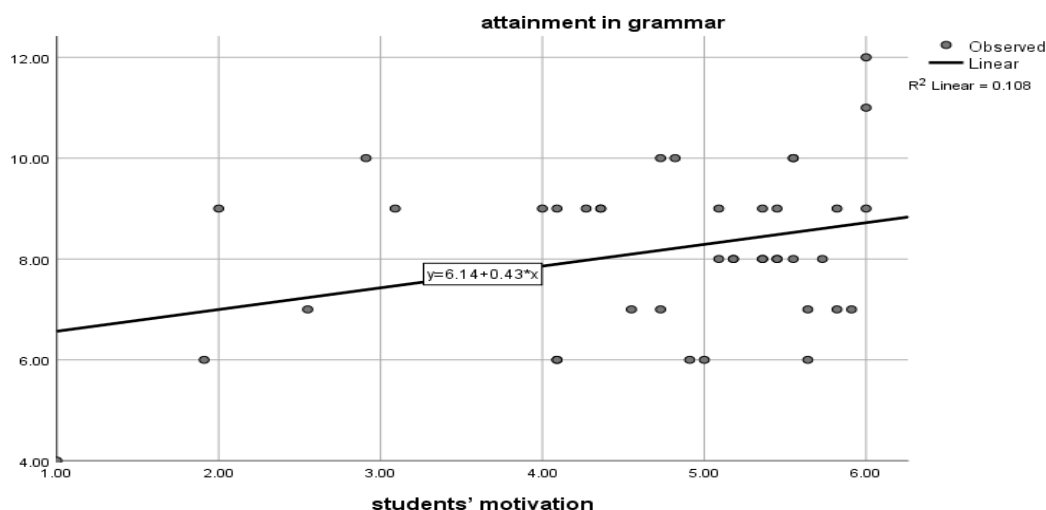
Figure 1. Correlation Between Students' Motivation and Their Attainment in Grammar

To get an in-depth understanding of the learners' IM and the factors that will help fostering it in FC, a comparison between the traditional explicit teaching and FC in terms of IM in learning grammar was held for discussion and the learners' replies varied as seen in Table 8.

TABLE 8
A COMPARISON BETWEEN TRADITIONAL CLASSROOM AND FCS IN GRAMMAR INSTRUCTION

Students' Preference	Percentage	Factors	Examples
Flipped Classroom	70%	Foster knowledge attainment	in the FC way, students can understand the idea easily.
			because I can understand the lesson better
			FC is better than traditional because it increases my knowledge
			it's better, it makes me understand more
		Self-paced learning	Yes, it can be sometimes because you can choose what time you like to see the lecture .
			Yes, it saves time and effort .
			FC is better, you can watch it during your free time, and repeat it if you don't understand.
		Self-autonomy	Yes, it's helped me improve my studying skills, it's proper me to study for my exams
			Yes. It helps make the student become more independent and work hard to understand new information.
		Student engagement	it is in some aspects. it encourages me as a person who's professionally diagnosed with social phobia to participate more in in-class discussions
			I think yes because it prepares the student for the course which can make them participate more.
			It's better because i have background knowledge about the lecture and can participate more in class
		Facilitate communication	Yes, it's a new way of learning and it helps to save time and share thoughts between students
			That is because you have information and prior knowledge about the lesson so it is easier to participate and interact with the lecture
Traditional Classroom	30%	Need for explicit teaching by the instructor	because you'll be clueless
			it is more comfortable, and easy to get the point

Table 8 shows that most of the students preferred the FC driven by several factors. These factors included fostering knowledge attainment, self-paced learning, self- autonomy, engagement, and facilitating communication. A few number of students still prefer the conventional approach in teaching grammar because of their need of the teacher's explicit teaching.

V. DISCUSSION

The present study aimed to examine the potential role of FC on Saudi EFL university students' IM and the effect of the latter on grammar attainment. The findings of the study clearly show that there is a significant positive relationship between FC and raising students' IM. This main finding is compatible to the findings of Alotaibi (2016), who confirms

that FL improves students' IM as well as their language abilities. FL helps in "lowering the affective filter of the language environment by providing a place beyond the classroom to practice the target language safely" (Alotaibi, 2020, p. 52).

Furthermore, upon drawing a comparison between the traditional classroom and FC in teaching grammar, the results also show that students are mostly motivated in FC for several reasons, which include fostering attainment, developing self-autonomy, fostering communication, raising engagement, and self-paced learning. FC has the advantage of the availability of online material that enables the students to watch videos at any time and place and repeat them in accordance with their own needs. Such a finding agrees with Ibrahim et al. (2022), Mandasari and Wahyudin (2021), Vaezi et al. (2019), as well as Pudin (2017). Sucaromana (2013) emphasizes that technology provides a more interesting learning environment. In the same vein, according to Alotaibi (2016), to achieve successful language learning, four conditions need to be met: high quality input, ample opportunities for practice, providing high quality feedback, and individualized content. Accomplishing these four conditions, along with face-to-face experiences in FC, can enhance students' IM. Alotaibi (2016) and Mai and Liu (2021) affirmed that the FC provides a student-centered and exploratory learning environment that satisfies students' sense of autonomy, competence, and relatedness, which are the three essential psychological needs according to SDT. Ibrahim et al. (2022) commented that implementing FL instruction can boost their motivation as it provides an opportunity for learners to feel connected to their teacher and peers through teacher feedback and classroom interaction with peers. Such collaborative participation helps students in their homework successfully.

In addition, the findings indicate that the FC model enhances students' autonomy. It allows students to have control over their learning experience and to learn at their own pace. In the same way, Maherzi (2011) stated that FC promotes personal initiative in the way they decide on their time and effort. Ibrahim et al. (2022), justifies that "in this way, students are accountable for their own learning; they study pertinent materials based on their learning rapidity, their anxiety is diminished, and they become enthusiastic to continue learning the language" (p. 10). Afzali and Izadpanah (2021) assert that self-regulated learners, who can set goals, be honest, and enjoy learning, also showed higher motivation levels.

Moreover, the findings point out the importance of teachers' role in the FC model. The role of the teacher is to assist students in constructing their knowledge, providing necessary help and guidance to students in the stage of internalization of knowledge, which helps improve students' sense of competence in learning. Vaeiz, Afghari, and Lotfi (2019), Bezzazi (2019), and Alnaabi (2020) stressed the role of the teachers' feedback in fostering autonomy. According to Maherzi (2011), "the less the teacher is perceived as controlling and his or her feedback as positive, the more the student seems to be intrinsically motivated" (p. 776) and feels competent. On the other hand, the more the "communication style and feedback are perceived as controlling and negative, the more the student tends to feel incompetent, and to be externally regulated or amotivated" (Maherzi, 2011, p. 776). She highlighted the teachers' role in creating chances for students to be self-regulated by citing Brown, who stated that "the teachers' job is not to reward students but to guide and help them discover their potential and be challenged by self-determined goals" (as mentioned in Maherzi, 2011, p. 789). Moreover, Ibrahim et al. (2022) pointed out that students' competence is improved by understanding and appreciating their viewpoints.

In addition, the findings show that the FC model provides ample opportunities for students to interact with teachers and peers in multiple ways, which fosters a sense of relatedness and collective belonging among students. Therefore, it is crucial to consider the inclusion of activities that trigger the students' decision-making and critical thinking skills as well as their creativity, such as participating in educational games, role playing, debates, and discussions. Such finding aligned with Maherzi (2011), who stated that the communicative aspect of FC increases the students' pleasure to study language as EFL learners. Ibrahim et al. (2022) highlighted the importance of the types of activities included in FC. Moreover, Pae (2008) emphasizes giving choices and using interactive activities that agrees with the students' needs to promote IM. In the same way, Oxford and Shearin (1994), Ebata (2008), and Afzali and Izadpanah (2021) confirmed that the FC, which emphasizes collaborative learning and prior experiences, improved students' motivation, and enjoyment in learning grammar. This was attributed to increased interactivity, participation, and motivation.

Finally, the results indicate that there is a meaningful relationship between IM and grammar attainment in FC. IM has proven to be related to language attainment (Shabani, 2017). Afzali and Izadpanah (2021) further indicate that FC positively changes students' motivation as well as their language performance. It upgrades students' academic performance and overall engagement.

VI. CONCLUSION AND IMPLICATIONS

The current study is unique in that it specifically examines the effectiveness of FL as a technology-based instructional approach on IM among Saudi Arabian EFL students. The research explored FCs within the framework of SDT. The results reveal that FC proves to be a valuable approach promoting IM in the EFL Classroom for the affordances it provides. It offers a personalized, meaningful, and technology-based learning environment. It is a very rich student-centered environment that increases participation and fosters autonomous and cooperative learning. It satisfies students' essential psychological needs of competence, autonomy, and relatedness and develops skills necessary for twenty-first century learning. Therefore, it fosters grammar attainment.

Based on these conclusions, several important pedagogical implications are drawn. First, IM is central to FL, as FC is a student-centered approach. It is the internal drive and interest in learning that thus influences students' engagement, effort, and perseverance in language learning tasks. Additionally, the success of FC largely relies on teachers' guidance, support for interaction, and choice of activities and materials. These are key elements in generating autonomy and establishing a supportive environment to promote IM, deep learning, and vitality in the classroom. Therefore, it is highly recommended that teacher training is crucial for successful implementation. Careful planning and decision-making on the material included in FC is also vital to ensuring its effectiveness. Additionally, continuous assessment of the whole process is necessary to ensure that it matches the needs of the students, who are a central part of the approach.

Considering the limitations of the present study, it is recommended that future research should be carried out to investigate long-term grammar proficiency and retention when FC is implemented. Moreover, the present study is limited to female participants. Therefore, more research is needed involving male EFL learners as participants under investigation. Also, since this research focuses on grammar, the effect of FC on other language skills like speaking and reading should be explored. Furthermore, more research is required to explore the relationship between extrinsic motivation and the implementation of FC. Further research could also investigate the factors that undermine motivation in academic contexts. The author argues that future experimental studies should view motivation as a multifaceted concept that includes both positive and negative dimensions.

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