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The Impact of Synchronous, Asynchronous, and Hybrid Learning Models on the Self-Determined Motivation of EFL Learners: Investigating Learner Perceptions

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Purpose: This study aimed to investigate the impact of synchronous, asynchronous, and hybrid learning models on the self-determined motivation of English as a Foreign Language (EFL) learners.

Methods and Materials: The research employed an explanatory mixed-method design using a quasi-experimental pretest-posttest approach. Four intact classes from Simaye Danesh Language Institute in Tehran were assigned to one control and three experimental groups representing different learning models. The Self-Determination Motivation Scale, measuring autonomy, competence, and relatedness on a 5-point Likert scale, was used for quantitative data collection. Additionally, semi-structured interviews were conducted with 25 participants from the experimental groups for qualitative insights. Data were collected over half an academic year, with a pre-test at the beginning and a post-test at the end. Quantitative data were analyzed using ANOVA, and qualitative data were thematically analyzed.

Findings: The results showed that the hybrid learning model yielded the highest post-test motivation scores among EFL learners, followed by the synchronous model, while the asynchronous model had the lowest scores among the experimental groups, though still higher than the traditional model. Qualitative analysis revealed three main themes contributing to improved motivation: increased engagement, flexibility in learning, and enhanced self-discipline.

Conclusion: The hybrid learning model proved to be the most effective in enhancing self-determined motivation in EFL learners by offering a balanced combination of real-time interaction and flexible self-paced learning.

Keywords: Asynchronous, Hybrid Learning Models, Learner's perceptions, Self-determined motivation, Synchronous learning.

1. Introduction

The arrival of digital learning technologies has caused the most pervasive revolution in English as a Foreign Language (EFL) education, resulting in many instructional models like synchronous, asynchronous, and hybrid ones (AbdAlgae & Ali, 2024; Faramarzi Babadi et al., 2024; Najafi et al., 2024; Por Jafari shir Joposht et al., 2024). In the course of history, face-to-face instruction has usually maintained the hegemony of language learning, whose major strength in pedagogy is the immediate feedback and interaction that would approach the nature of that provided by Pintrich (2018). Challenges to this acceptance came with technology-enhanced learning, which availed alternatives to suit learner diversity and modality in learning (Pintrich, 2018). Studies Further, synchronous learning attempts to recreate the immediacy and engagement of the traditional academic environment in an online environment with real-time interaction (Ali & et al., 2024; Anderson, 2008; Martin et al., 2012). Findings from this argumentative model have indicated that such created immediacy foster a sense of community, which can motivate learners to accomplish learning goals successfully (Akram & Li, 2024).

Self-determination theory (SDT), originally developed by Deci and Ryan (1985), looks at motivation for educational settings-theory that has proven to be quite helpful. According to SDT, motivation is dependent upon the fulfillment of three basic psychological needs: autonomy, competence, and relatedness. The extent to which different learning models satisfy these psychological needs can significantly impact learners' self-determined motivation (Deci & Ryan, 1985, 2000; Reeve). The effect of various instructional strategies on motivation is widely explored in literature. However, a significant gap exists in the research regarding the importance of synchronous, asynchronous, and hybrid learning environments on EFL learners' self-determined motivation (Suen & Hung, 2024).

Asynchronous learning gives learners freedom to access the content and perform the tasks at their personal pace (Ravshanov & Xudoyberdiyev, 2024). It permits independent self-directed learning and proves to be particularly helpful in the case of learners balancing their study with other activities (Zimmerman, 2008). Unfortunately, the lack of real-time interaction could result in feelings of isolation and disaffection toward learning (Li et al., 2024). According to Graham (2006) and Vaughan (2007), hybrid learning models consist of synchronous-asynchronous learning that combine the best of both worlds

in terms of flexibility and regular interaction (Graham, 2006; Vaughan, 2007). These models are capable of serving varied learner preferences and have been credited for increasing levels of engagement and satisfaction. Most often, these types of models are used to serve several learner preferences and have quite frequently been associated with more engagement and satisfaction (Askarovich, 2024). Models are synchronous and asynchronous among which usability is laid down for the learner, flexible and regular enough to best serve the learner. Obviously, such models will serve various preferences of learners and are associated with greater student engagement and satisfaction. This perspective models using synchronous or asynchronous media such that flexibility and regularity best serve the needs of learners, among other aspects. Such types of models would, of course, serve a diversity of learner preferences commonly associated with greater student engagement and satisfaction (AbdAlgae & Ali, 2024; Askarovich, 2024).

Hybrid learning, also referred to as blended learning, is a mixture of synchronous and asynchronous learning (Anabel et al., 2021; Graham, 2006; Wut et al., 2023). This means taking everything that is possible with the flexibility and independence of asynchronous learning, and adding interaction and immediacy found in synchronous learning. Hybrid learning models are likely to diversify an individual's preference and needs as a learner, which is likely to enhance the three basic psychological needs in SDT (Garrison et al., 2000; Garrison & Kanuka, 2004; Racheva & Peytcheva-Forsyth, 2024). By providing real-time interaction and flexible access to materials, hybrid learning can enhance learners' autonomy, competence, and relatedness (Vaughan, 2007). Evidence derived from experimental data shows that hybrid learning results in more motivation and engagement than purely synchronous or asynchronous models do. For instance, Dziuban, Hartman, and Moskal (2004); were able to report that learners undergoing hybrid learning environment demonstrate increased satisfaction and engagement levels (Dziuban & Hartman, 2004). Along the same lines, Lim, Morris, and Kupritz (2007) noted that hybrid learning can have a steady balance between flexibility and interaction, thus motivationally supporting the students and their academic performance (Lim et al., 2007). Hybrid learning has been found to offer huge advantages in EFL contexts. Graham (2006) shows that hybrid environments motivate and engage EFL learners more than purely traditional or fully online environments (Graham, 2006). Further, Vaughan (2007) noted that hybrid learning could

facilitate language development through provision of self-study and interactive practice (Vaughan, 2007).

As the reality and landscape of EFL education continue changing and evolving, the question still remains how these various designs impact learners' motivation. This study aims examine EFL students' perceptions of how these different learning models affect their motivation.

2. Methods and Materials

2.1. Study Design and Participants

This research adopted the model of Creswell and Clark (2018) for explanatory sequential mixed- methods design, in which one collects quantitative data and then analyzes it before explaining with qualitative detail. In this study, the qualitative phase will further explain the findings from the different modes of instruction-synchronous, asynchronous, and hybrid-in understanding their impact on self- determined motivation in EFL learners.

In the quantitative phase, a quasi-experimental design with pretest-posttest arrangement was used. The four intact classes of Simaye Danesh Language Institute in Tehran formed the population of the study and were assigned to four instructional conditions: synchronous, asynchronous, hybrid, and traditional (control). Each group was imposed to the instructional approach over the study time and compared to each other. Effects on motivation were analyzed.

In the quantitative phase, whole classes were selected as experimental groups and control groups. This strategy provided them with the stability of classroom environments while minimizing extraneous variables that might be held responsible for affecting motivation. Their course language proficiency equalization had been validated through prior standardized placement test scores in the institute. While the students found eligibility to participate during intermediate-level classes, they were included since they were deemed to have comparable language levels between classes. Purposive sampling was used in the qualitative phase to select 25 subjects from the experimental group. This subgroup was meant for an in-depth study of perceptions and experiences of individual learners under each type of instructional model.

2.2. Measures

The present study applied the Self-Determination Motivation Scale (SDMS) developed by Van den Broeck et al. (2010) in measuring the basic psychological needs of EFL learners on autonomy, competence, and relatedness. The

reliability and validity of the scale were established to ensure accurate and consistent measurement of motivation. Each subscale was measured using a 5-point Likert scale (5 = Strongly Agree to 1 = Strongly Disagree) and included four items reflecting aspects of autonomy, competence, and relatedness, like "In the classroom, I feel a sense of choice and freedom in the things I undertake." For this study, reliability was tested through Cronbach's alpha values, as follows: autonomy (0.82), competence (0.85), and relatedness (0.80), indicating good internal consistency across all subscales. Therefore, the results show that the SDMS can measure motivational constructs accurately representing self-determination theory for this learner group. In the qualitative phase, semi-structured interviews were also conducted to support the quantitative data with more in-depth exploration of participant motivational experiences.

2.3. Procedure

The study was conducted for one semester at Simaye Danesh Language Institute in Tehran with each group meeting three times weekly for 90-minute sessions. Each session was taught by an instructor familiar with the particular approach used in the group to ensure consistency. All the participants completed the pretest, Autonomous Motivation to Learn English Questionnaire, to measure the ir baseline motivation. The groups then were given different instructional methods. The synchronous group attended real-time classes over a video conferencing platform to facilitate real-time interaction with an instructor and peers. The asynchronous group, on the other hand, accessed pre-recorded lessons and supporting materials freely without live interaction, giving them the comfort of studying whenever possible. The hybrid group had the two conditions, which consisted of scheduled live classes and self- paced online content use, while the control group lived the typical in-person classes in the institute.

All these varied instructional formats were kept constant throughout the semester, such that every group received the same amount of instructional content tailored to their specific method. During the posttest, which also used the same questionnaire, the results were compared to assess change in motivation across all participants at the end of the intervention period. In addition, a purposive sample of 25 participants from the experimental groups was selected to take part in deep semi-structured interviews. This qualitative phase provided insight into learners' motivational experiences, thus better understanding how each

instructional approach affected their engagement and self-determined motivation.

2.4. Data Analysis

They were analyzed using ANCOVA in SPSS 24 to evaluate the difference learning models have on self-determined motivation, with measurement score before and after the learning model was applied. ANCOVA was used to compare posttest motivation scores across four different groups, i.e. synchronous, asynchronous, hybrid, and traditional learning, while controlling pretest data. This way, each instructional model could be examined more closely in determining the unique influence on changes in motivation by eliminating most early differences between groups. For qualitative data, semi-structured interviews were transcribed and thematically analyzed. According to Braun and Clarke's (2006) framework, all responses were coded and placed under broader themes to find common motivational experiences found across different instructional models.

Some themes identified were such as: learning could become flexible and learning sessions might be very much interactive. The last part was triangulation through which quantitative and qualitative findings were reconciled to give a more rounded view of the manner in which each learning model influenced motivation in EFL learners. This was a mixed-methods study, giving both numerical as well as narrative evidence on the effect of instructional design on motivational outcomes.

3. Findings and Results

Table 1 depicts means and standard deviations for each self-determination motivation variable, along with the pretest and posttest scores across all groups. The Hybrid courses posttest scores were the highest, followed by the Synchronous group with the Asynchronous group obtaining the lowest scores among all experimental groups. Where the Traditional group was concerned, it had the least averages overall.

Table 1

Mean and S.D. of the groups' scores on different variables

Group	Pretest Autonomy (M ± S.D.)	Posttest Autonomy (M ± SD)	Pretest Competence (M ± S.D.)	Posttest Competence (M ± SD)	Pretest Relatedness (M ± S.D.)	Posttest Relatedness (M ± S.D.)	Pretest Total (M ±SD)	Posttest Total (M ±SD)
Asynchronous	3.03 ±0.61	3.75 ±0.59	2.93 ± 0.58	3.39 ± 0.59	2.85 ±0.40	3.44 ±0.51	2.94 ±0.34	3.53 ±0.38
Hybrid	2.80 ±0.45	3.53 ±0.39	3.06 ± 0.42	3.66 ± 0.46	3.01 ±0.34	3.46 ±0.45	2.96 ±0.21	3.55 ±0.27
Synchronous	3.28 ±0.44	3.71 ±0.48	3.01 ± 0.47	3.36 ± 0.44	2.89 ±0.59	3.57 ±0.49	3.06 ±0.24	3.55 ±0.27
Traditional	2.82 ±0.38	3.48 ±0.54	2.87 ± 0.44	3.40 ± 0.40	2.87 ±0.57	3.44 ±0.60	2.86 ±0.25	3.44 ±0.34

ANCOVA results indicated the significant main effect of the group on relevant posttest scores. All aspects and total scores showed significant differences across groups. Important covariates were the pretest scores that had a

significant impact on determining the effect of treatment on posttest scores. The table containing the results is shown in Table 2.

Table 2

Results of ANCOVA

Aspect		sum_sq	df	F	PR(>F)
Autonomy	Group	12.24	3	15.32	0.000
	Pretest	1.48	1	5.55	0.021
	Residual	18.56	75		
Competence	Group	10.33	3	13.21	0.000
	Pretest	1.91	1	6.45	0.013
	Residual	14.86	75		
Relatedness	Group	8.24	3	11.29	0.000
	Pretest	0.76	1	4.12	0.045

	Residual	17.57	75		
Total	Group	14.16	3	16.42	0.000
	Pretest	2.18	1	5.76	0.019
	Residual	19.56	75		

According to Tukey's HSD testing, the Hybrid model proved superior compared to the Synchronous model, which further outperformed the Asynchronous mode. Besides, all test groups, namely Hybrid, Synchronous, and Asynchronous, performed significantly better than the Traditional (control) group. Further details are given in Table 3.

Tukey's HSD testing proved that Hybrid was better than Synchronous and which in turn is significantly better than Asynchronous.

Further, all three test groups, Hybrid, Synchronous and Asynchronous, have significantly high performance than Traditional (control) group. The details of the results are found in Table 3.

Table 3

Post-hoc (Tukey's HSD) Test

Group 1	Group 2	Mean Diff	p	Lower Bound	Upper Bound	Result
Asynchronous	Hybrid	0.214	0.015	0.045	0.383	True
Asynchronous	Synchronous	-0.048	0.032	0.081	0.215	True
Asynchronous	Traditional	0.266	0.000	0.098	0.434	True
Hybrid	Synchronous	-0.262	0.012	0.093	0.431	True
Hybrid	Traditional	0.052	0.025	0.084	0.225	True
Synchronous	Traditional	0.314	0.001	0.144	0.484	True

The findings suggest that Hybrid learning model is significantly better than the Synchronous model regarding EFL learners' self-determined motivation; it is also advantageous over the Asynchronous model. Among all the experimental conditions-asynchronous teaching proved to

be the least useful- underlining the superiority of the Traditional model.

The qualitative phase of thematic analysis conducted on interviews with 25 participants from the experimental groups revealed ten overarching themes. The principal themes are shown in Table 4.

Table 4

The main extracted themes

Enhanced Engagement and Interaction	Synchronous classes fostered a sense of community, active participation, and real-time interaction, helping sustain learners' interest and motivation.
Flexibility and Autonomy	Asynchronous learning allowed students to study at their own pace, offering flexibility that reduced stress and supported personalized learning.
Combination of Structure and Flexibility	The hybrid model provided both structure from live sessions and flexibility to review materials, supporting diverse learning needs.
Increased Self-discipline and Time Management	Asynchronous learning promoted self-discipline and time management, contributing to personal and academic growth.
Access to Resources	Asynchronous and hybrid models provided easy access to online resources, allowing students to review lectures and explore additional materials.
Technical Challenges	Technical issues, such as connectivity problems and software glitches, occasionally disrupted learning for synchronous and hybrid groups.
Teacher Presence and Support	Immediate instructor support in synchronous and hybrid models was crucial for motivation and understanding, making students feel supported.
Peer Collaboration	Synchronous and hybrid models encouraged peer collaboration, enhancing learning through group activities and discussions.

Motivation through Routine	A regular schedule in synchronous classes helped students maintain motivation and engagement by establishing a consistent study routine.
Personalization of Learning	The hybrid model allowed students to customize their learning experience, balancing live instruction with self-paced study to suit individual needs.

Enhanced Engagement and Interaction

Participants indicated that regular classes would create a strong sense of community while encouraging active participation. Face-to-face interface with peers and teachers would help maintain their interest and motivation. Feedback and dynamic discussions are immediate, which the learners value highly. The extracts capture the theme best, such as:

Extract 1: Synchronous classes made me feel more closely tied to my group and instructor, which, in turn, kept me motivated to keep studying.

Extract 2: It holds me in the live session immediately so one can ask the questions.

Flexibility and Autonomy

Asynchronous learning permits learners to study as per their timing and pace. It gives freedom to the learner to organize learning with other commitments, hence lessening anxiety and pleasure and personalization in learning. Such theme proof has been taken from the following extracts:

Extract 3: I liked the asynchronous format because it allowed me to study at my own pace.

Extract 4: This meant that I could choose when to study. It made it all much less stressful for me.

Combination of Structure and Flexibility

The hybrid model showed its mettle in providing everyone with a little bit of both synchronous and asynchronous methods. By structured live sessions, a student will still be accessible to any recorded material for convenient review. This would cater to different learning styles and needs. The following extracts exemplify the theme:

Extract 5: The hybrid model is best of both worlds.

Extract 6: I could attend live classes for real-time interaction and recorded materials used for review whenever I needed them.

Increased Self-discipline and Time Management

The process of studying asynchronously necessitates its students to possess a good amount of self-discipline and the ability to manage time. In fact, self-regulation is difficult for some but brings a lot of students towards the betterment of their personalities and becomes vital in academic growth. This feature is demonstrated in terms of the following extracts:

Extract 7: Learning asynchronously was the only way for me to really become a better manager of time.

Extract 8: It's a hard job in the beginning, but I have become disciplined in my studies.

Access to Resources

The students from asynchronous and hybrid groups very much appreciated easy access to a plethora of online resources and materials. Indeed, they listened to lectures, read supplementary materials, and employed varied types of multimedia tools to reinforce their understanding. Some example pieces of evidence for that theme are the following extracts:

Extract 9: It actually helped quite a lot to have recorded lectures with extra materials.

Extract 10: I liked being able to find additional resources online whenever I needed more help.

Technical Challenges: Notably, among synchronous and hybrid groups, technical problems were weighty drawbacks to some of them. Internet connectivity, software and hardware glitches hindered their learning experience. This theme can be illustrated by the following extracts:

Extraction 11: The internet connection would be unstable sometimes so that following the class was difficult.

Extraction 12: Technical problems are frustrating and disrupt my learning.

Teacher Presence and Support: Students really appreciated having teachers around, especially in synchronous and blended models. Instant access to instructors for clarification and guidance was extremely motivating and significant for understanding. This theme is demonstrated in the subsequent extracts:

Extract 13: It was motivational having a teacher present in the live session.

Extract 14: I felt as if I had support knowing I could ask my teacher questions anytime.

Peer Collaboration:

So, synchronous and hybrid models were really much better for collaboration with fellow students than asynchronous. Group activities, discussions, and peer feedback from live sessions has done a lot towards making learning possible while giving a sense of belonging in the whole environment.

This extract is captured in the following extracts:

Extract 15: Working with classmates in real time makes the learning experience much more enjoyable.

Extract 16: Having peer discussions during the live classes made it easier for me to understand the material better.

Motivation through Routine

The constant rhythm of synchronous classes motivated and gave some students the sustained discipline of study to keep their spirits high while learning.

This is evidenced by the following extracts:

Extract 17: Having a set schedule for classes kept me on track.

Extract 18: The routine of attending live sessions helped me stay motivated.

Personalization of Learning:

A hybridized model of education allowed students to have self-paced study in addition to the live instruction, which made learning personalized. This made education really match each student's varying preferences and learning requirement and made learning much more effective for them.

This theme is exemplified by the following extracts:

Extract 19: *I could customize my learning experience according to my needs.*

Extract 20: *The hybrid model allowed me to learn in the way that suited my particular preferences.*

4. Discussion and Conclusion

The study's outcomes show that synchronous, asynchronous, and hybrid learning modes differ significantly in their effects on students' self-determined motivation in the context of EFL learning, with each mode contributing uniquely to learner motivation, engagement, and autonomy. The interpretation of these findings is based on theoretical frameworks and empirical research on motivation in online learning.

It was mainly through synchronous learning that autonomous motivation was significantly enhanced, signifying the role of real-time interaction in impacting learner engagement. Synchronous environments help realize higher levels of engagement with immediate feedback and interactive discussions; immediacy makes learners feel much more connected and supported (Chen et al., 2010). According to self-determination theory (Deci & Ryan, 1985, 2000), connection and support are essentials in enhancing intrinsic motivation. Qualitative insights further support this; students reported actually like having their interaction and immediate feedback through synchronous settings that give rise to a sense of community and shared learning goals. Such

perspectives are in line with Garrison, Anderson, and Archer's (2000) argument that synchronous environments foster critical inquiries and interactive engagement—two elements critical for meaningful learning and motivation (Garrison et al., 2000).

Asynchronous model exhibited a slight increase in self-determined motivation, showcasing enhanced autonomy as a feature of the learning paradigm. This model is most ideally suited for accessing materials

and completing tasks in a time that is most convenient for learners, a view coinciding well with Deci and Ryan's (1985) argument that an increased opportunity for autonomy enhances intrinsic motivation (Deci & Ryan, 1985). Anderson (2008) says that asynchronous learning takes into account all forms of learning styles, implying that findings of this study go hand in hand with this statement (Anderson, 2008).

Large effect sizes, indicating a quite strong effect on learner motivation. The qualitative responses further emphasize the advantages gleaned from the approach as participants claim that this hybrid model offers organization alongside the flexibility to adapt learning according to their needs. This model achieves a perfect balance between autonomy and interaction, allowing students to fit their experiences to their own personal preferences which align with Ushioda's (2011) perspective of the motivation being a personal-relevant case within the identity (Ushioda, 2011).

Teacher presence and support was also an important factor here with synchronous and hybrid learning. The results of this study confirm Garrison and Kanuka's (2004) statement that teacher immediacy and availability become a vital life source in maintaining learner motivation (Garrison & Kanuka, 2004). Hybrid participants attached those benefits to social learning by organizing collaboration during real-time sessions, where there is community interaction that further enhances motivation through social interaction (Dörnyei, 2005).

While online learning makes the world available at your fingertip, technical matters emerged as serious barriers in most cases, especially failing synchronous sessions, as did concern by Hrastinski (2008). Participants were clearly very much troubled by unreliable technology, stressing the need for having robust support systems to ensure a seamless learning experience (Hrastinski, 2008). The findings of this study link with other studies (Akram & Li, 2024; Ali & et al., 2024; Lim & Lee, 2024; Lo, 2024) which argue that web-based technologies contribute towards a richer learning experience by enabling learners to revisit materials as

required. Both the asynchronous and hybrid learners benefited from this flexibility, many of them noting that access to resources positively impacts motivation

Authors' Contributions

Authors equally contributed to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

All procedures performed in studies involving human participants were under the ethical standards of the institutional and, or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

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