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Investigating the mediating effects of motivation on academic performance in a synchronous EFL online learning

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Abstract

The issue of motivation in synchronous online teaching and learning is still an area of continued research and development. This research seeks to determine the roles played by cognitive presence, teaching presence and social presence concerning external and internal motivational factors and the students' academic performance with a particular focus on the effect of the two motivational factors on the English performances of EFL learners learning online in a parallel mode. Questionnaires were administered to 233 EFL students at a private university in the Mekong Delta in Vietnam. The effects of the research variables under consideration were analyzed by Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings indicate that cognitive presence significantly influences both external and internal motivation. Teaching presence positively impacts external motivation, but not internal motivation or academic performance. Whereas social presence does not significantly affect motivation or academic performance. External motivation was found to positively influence academic performance, while internal motivation showed no significant effect. These results suggest that enhancing cognitive and teaching presences can effectively enhance students' external motivation, which in turn improves academic performance in synchronous online EFL learning. The study highlights the need for well-designed instructional strategies and active facilitation to engage students. The study's limitations include employing cross-sectional research design, and participants engaging in one institution only, a recommendation for future research, that is, the use of longitudinal research designs and large samples. These findings are crucial for educators and policymakers who aim to optimize online educational strategies to enhance students' academic motivation and success.

KEYWORDS: EFL, Synchronous Online Teaching and Learning, Motivation, CoI, University.

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1. Introduction

Motivational factors have been well researched in language learning in the field of education (e.g., Łockiewicz, 2019; Riyanti, 2019; Badali et al., 2022; Yung, 2023) and how they affect students' learning processes in online platforms (e.g., Badali et al., 2022). Previous studies highlighted that motivation is not only a predictor of academic success but also a vital component that affects students' satisfaction and engagement in virtual settings (Giesbers et al., 2014; Elshareif & Mohamed, 2021). The COVID-19 outbreak disrupted conventional educational systems worldwide in unprecedented ways and accelerated a shift to online learning. This shift posed numerous challenges and opportunities for educators and students alike. Digital tools and e-learning systems became indispensable, providing continuity in education amidst global lockdowns (Bokolo et al., 2020; Yan et al., 2022). The pandemic highlighted significant gaps in the preparedness and adaptability of educational institutions to fully leverage online learning's potential (Bilal et al., 2022). The transition from traditional learning to online learning to continue education, especially during and after the COVID-19 pandemic, has also posed the question of the role of student motivation in this educational setting, especially in language learning where learning

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environments play significant impact on the learning process (e.g., Sociocultural theory, Social Cognitive theory, Interactionist theory).

The Community of Inquiry (CoI) framework, developed by Garrison, Anderson, and Archer, provides a holistic approach toward online learning. It emphasizes the important roles of cognitive presence, social presence, and teaching presence in fostering a meaningful learning environment (Garrison et al., 2000; Garrison & Arbaugh, 2007). Cognitive presence plays a crucial role in fostering critical thinking and sustained learning, which are heavily influenced by students' motivation (Fiock, 2020; Al Mamun & Lawrie, 2023). Social presence, the capacity of learners to present themselves as social entities within a learning community, facilitates active participation and interpersonal interactions, contributing to an increase in learning outcomes (Lim, 2023). However, the existing literature shows mixed findings of this relationship (e.g., Kreijns et al., 2022; Dinh, 2023). Teaching presence, comprising of the organization, facilitation, and coordination of cognitive and social processes, has a direct impact on students' motivation and learning performances (Li & Wang, 2024).

Despite widespread recognition of motivation's importance in education, its specific impact on EFL success in synchronous online environments is not fully understood. Prior studies, such as one by Vansteenkiste, Lens, and Deci (2006), and Jang, Reeve, and Deci (2010) highlighted the quality of academic motivation as a pivotal factor, yet the correlation of different types of motivation and academic performance remains inconsistent (e.g., Meng & Hu, 2022; Zhu et al., 2022). However, there is a scarcity of research indicating the impingement of different types of motivation, particularly intrinsic and extrinsic ones, on learners' English learning in synchronous online modes, which paves the way for this study. Moreover, this research also investigates the impact of synchronous online modes on students' performance in English.

By addressing these objectives, we aspire to contribute to the development of e-Learning by providing actionable insights into the optimization of online educational practices to foster enhanced academic motivation and performances.

2. Literature review

2.1. Interplay Between Cognitive Presence and Motivation in Academic Performance

Cognitive presence, the ability of learners to construct and validate meaning through continuous reflection and discourse within a community of inquiry (Garrison et al., 2001, p.11), is akin to a collaborative problem-solving process that unfolds in four stages:

1. Identifying the Problem: Students recognize a problem or question requiring exploration.
2. Exploring the Problem: Students engage in critical thinking individually and with peers to analyze the issue.
3. Making Sense of the Problem: Students gain deeper insights into the problem but still require guidance from the instructor.
4. Applying the Knowledge: Students utilize their newfound understanding to solve problems or generate new ideas.

Cognitive presence is an essential component of the CoI framework, which is designed to foster effective online learning environments (Garrison, 2011). It promotes collaborative knowledge creation and peer learning.

Research indicates that cognitive presence can positively influence both intrinsic and extrinsic motivation, as well as academic performance. Intrinsic motivation, driven by personal interest, and extrinsic motivation, influenced by external rewards or pressures, can both benefit from cognitive engagement (Tokan & Imakulata, 2019; Widiatmaka, 2021). While cognitive presence enhances motivation by engaging learners in collaborative problem-solving, intrinsic motivation can simultaneously support cognitive processes by driving a deeper interest in understanding concepts. Tokan and Imakulata (2019) found that intrinsic motivation directly enhances cognitive processes in traditional learning environments, meaning that students' eagerness to comprehend a concept boosts their understanding. Although Widiatmaka (2021) suggested that cognitive presence did not directly affect motivation, it facilitated the link between motivation and academic performance. Other research in blended learning environments has revealed an inverse relationship between motivation and cognitive presence, though it failed to establish a direct causal link (Law, Geng & Li, 2019). This finding highlights the intricate and context-dependent nature of this relationship, suggesting that cognitive presence may exert an indirect rather than direct influence on motivation. This underscores the complex relationship between motivation and cognitive presence in shaping learning outcomes. Exploring these nuances could guide the development of tailored instructional strategies that optimize the interplay of cognitive presence and motivation in various learning environments.

Cognitive presence interacts with other key elements in the CoI framework, including social and teaching presence. Gutiérrez-Santiuste et al. (2015) demonstrated that social and teaching presence significantly enhance cognitive presence, highlighting that a supportive environment improves cognitive engagement and academic outcomes. Thus, it is crucial to cultivate all three presences to optimize the online learning experience.

In online learning settings, cognitive presence is linked to deeper learning and greater engagement. A study by Galikyan & Admiraal (2019) showed that while cognitive presence is vital, it does not always directly correlate with higher grades. Instead, cognitive presence may indirectly contribute to academic success by fostering active participation, which increases a student's prominence in online discussions, thereby improving learning outcomes. Similarly, Doo et al. (2023) emphasized the role of cognitive presence in enhancing learning outcomes, especially during the COVID-19 pandemic.

Based on these findings, the following hypotheses were formulated:

- H1a: Cognitive presence positively influences students' external motivation in synchronous online general English learning.
- H1b: Cognitive presence positively influences students' internal motivation in synchronous online general English learning.
- H2: Cognitive presence positively influences students' academic performance in synchronous online general English learning.

2.2 Effect of Teaching presence on Motivation and Academic performances

Teaching presence refers to the actions and efforts aimed at designing, facilitating, and integrating cognitive and social processes within learning communities to create valuable and meaningful educational experiences (Garrison, 2011). Research into teaching presence continues to generate substantial interest among scholars and educators.

Teaching presence is crucial for motivating students across diverse learning contexts. For instance, Shi et al. (2021) found that teaching presence, particularly in terms of pedagogical support, positively impacts both intrinsic and extrinsic motivation in blended synchronous learning environments. Similarly, Werang et al. (2022) demonstrated that teachers' performance in motivating students significantly enhances academic achievements in Indonesian language classes at the junior high school level. This suggests that teachers not only improve academic performance by supporting students but also foster intrinsic motivation. Widiatmaka (2021) emphasized that teaching presence directly influences student academic performance by guiding learners through their educational journey.

Furthermore, teaching presence plays a pivotal role in shaping students' motivational growth over time. Lee and Lim (2023) found that teaching presence influences students' motivational beliefs, expectations, and task values, which improve throughout a course. In blended learning environments, teaching presence enhances both social and cognitive presence, which in turn boosts motivation and indirectly improves performance (Law et al., 2019). In addition, teaching presence mediates the relationship between intrinsic motivation and course satisfaction, highlighting the impact of student-teacher interactions (Trolian et al., 2018).

Teaching presence is also essential for academic success. In blended learning courses, students report that high levels of teaching presence, characterized by effective content delivery and facilitation, are strong predictors of performance (Almasi & Zhu, 2019). Aspects such as course design, facilitation of discussions, assessment, and technological support influence learning engagement, which is closely tied to performance. For example, assessment and technological support are linked to behavioural engagement, while direct instruction is linked to emotional engagement (Wang, 2022). Studies on video-mediated learning also show that teacher presence in videos significantly enhances academic achievements, especially when the teacher's presence is intermittent rather than continuous (Yu, 2022).

These findings underscore the significance of teaching presence in promoting students' motivation and enhancing academic outcomes. Based on this, the following hypotheses were proposed:

- H3a: Teaching presence positively influences students' external motivation in synchronous online general English learning.
- H3b: Teaching presence positively influences students' internal motivation in synchronous online general English learning.
- H4: Teaching presence positively influences students' academic performance in synchronous online general English learning.

2.3 Effect of Social presence on Motivation and Academic performances

Social presence, according to Garrison and colleagues (2000), refers to a learner's capacity to express his or her personality and emotions while interacting with other learners in an online class setting. Kehrwald (2008) expands on this concept, viewing social presence as the capacity of an individual to demonstrate active participation in a virtual environment. This active participation signals their receptiveness to interpersonal interactions and fosters a sense of "being there" with others in the online learning space Kehrwald (2008) further emphasized the performative nature of social presence, positing a developmental process. This process entails the initial establishment of social presence, followed by its ongoing maintenance through visible learner activity. According to Tan (2021), social presence reflects how students connect, collaborate, and interact with classmates and coursework. This sense of community is believed to foster belonging and encourage open expression (Law et al., 2019). Social presence has been identified as a significant factor influencing student engagement and motivation in online

classrooms and open online courses (MOOCs) (Poquet et al., 2018; Widjaja & Chen, 2017; Mitchell et al., 2021). As online learning inherently functions as a social process, perceiving other participants as genuine individuals becomes crucial for stimulating productive interaction and collaborative learning (Lowenthal & Moore, 2020). Therefore, learners exhibiting high social presence are less likely to experience feelings of isolation or disconnection, as their peers perceive them as authentic (Widjaja & Chen, 2017; Miao & Ma, 2022). In this way, heightened levels of social presence may positively influence students' motivation (Mitchell et al., 2021).

Social presence has recently gained recognition as a crucial factor influencing academic achievement in virtual learning modes (Dikkers et al., 2017). A growing body of research suggests a positive and significant association between social presence and students' success in these settings (Rodriguez, 2015; Tan, 2021). For instance, Lowenthal and Moore (2020) investigated the interconnectedness of social presence, student satisfaction, and academic achievement in online courses. Their study, involving 104 students from asynchronous classes, revealed a positive correlation. The study found a positive correlation, suggesting that higher social presence leads to better academic achievement in these online courses. Tan (2021) also reported that students perceived a pronounced sense of social presence during their online courses, which they attributed to improved motivation and higher academic performance. However, while some studies suggest a positive link between learning outcomes and social presence, the findings are still inconclusive (Choy & Quek, 2016; Rodriguez, 2015). Kožuh et al. (2015) investigated the connections between social interaction, academic achievement, and social presence in a study of 62 engineering undergraduates. While their findings indicated a link between social interaction and student success, social presence showed no significant association with academic achievements. In contrast, Akyol and Garrison (2008) found that while social presence is essential in online learning, its impact on student-perceived learning is most effective when integrated with cognitive and teaching presence.

Based on the above analyses, we proposed the following hypotheses:

- H5a: Social presence positively influences students' external motivation in a synchronous online learning of English.
- H5b: Social presence positively influences students' internal motivation in a synchronous online learning of English.
- H6: Social presence positively influences students' academic performances in a synchronous online learning of English.

2.4. Effects of motivation on academic performance

Student motivation emerges as a critical factor influencing academic achievement (Hakan & Munire, 2014; Clayton et al., 2010). Previous research suggests a distinction between extrinsic and intrinsic motivation in learning outcomes (Young, 2005). Extrinsic motivation is driven by external rewards or punishments (Ryan & Deci, 2000) and may initially promote participation in learning activities. In contrast, intrinsic motivation, arising from genuine interest and personal satisfaction (Young, 2005), fosters deeper learning through increased persistence. This ultimately translates to enhanced academic performance. This positive association is believed to stem from the direct influence of motivation on student effort. Highly motivated students exhibit increased effort due to their interest in the subject and a belief in its value (Wang et al., 2023). Conversely, low motivation can lead to a lack of drive and hinder academic achievement. Empirical studies consistently demonstrate a significant positive correlation between student motivation and academic success across various disciplines (Ariani, 2016). For instance, Berdida and Grande's (2023) research revealed a positive impact of motivation on the academic achievement of nursing students. This aligns with Afzal and Crawford's (2022) research, which demonstrated a positive relationship between academic performance and self-motivation within online learning environments.

Research also suggests the mediating role of motivation in online learning environments. However, the precise nature of this influence remains under debate (Tucker et al., 2002). Some scholars advocate for a direct effect of motivation on performance, while others posit an indirect influence through factors impacting motivation itself. Ariani (2016) found a link between higher academic motivation and stronger self-regulation, which in turn, resulted in students' better academic performance. In this vein, Ma et al. (2020) and Wang et al. (2022) suggested that motivation mediates the positive effects of teacher-learner relationships on students' academic performance in virtual environments. Existing research further supports this connection between teacher engagement and motivation in the EFL context (e.g., Carreira, 2012). Additionally, a burgeoning body of research demonstrates a positive relationship between autonomous motivation, learning behaviors, and achievement (Alamer & Lee, 2019). In this sense, Self-determined motivation can increase students' perceived importance of online learning and encourage the application of cognitive strategies, ultimately leading to improved foreign language learning outcomes (Fang, 2015).

Based on the above analyses, the following hypotheses were put forward:

- H7a: Students' external motivation positively influences their academic performances in a synchronous online learning of English.
- H7b: Students' internal motivation positively influences their academic performances in a synchronous online learning of English.

The research model and hypotheses presented were depicted in Figure 1 below.

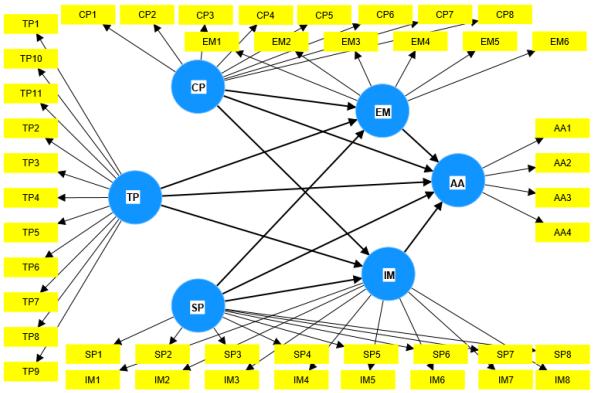

Figure 1 - The proposed research model.

3. Methods

3.1 Participants

The research participants were 265 EFL students from a non-public university in the Mekong Delta, Vietnam from March 26 to May 10, 2024, who have studied general English in synchronously online platforms via Microsoft Teams during the academic year 2023-2024 as required by the university. They come from various provinces in the Mekong Delta, majoring in diverse disciplines, ageing 18-19. To call for their voluntary participation in the study, survey questionnaire and a consent form were shared with these participants via a link.

The official participants of the study were 233 out of 265 after the data filtration. Kock and Hadaya (2018) indicate that to conduct a PLS-SEM analysis with a significance level of 5% and a minimum path coefficient of 0.2, a sample size of at least 155 is required. Therefore, the sample size employed in this study meets the necessary criteria for subsequent data analysis. Detailed demographic information of the participants is provided in Table 1 below.

Table 1 - Participant demographics.

		N	Percentage (%)
Gender	Male	133	57.08
	Female	100	42.92
Age	18-19	233	-
Majors	English	82	35.19
	Business	90	38.63
	IT	61	26.18
Academic year	1st	75	41.2

3.2 Research instrument

The survey questionnaire comprised four sections containing 45 modified items adapted from prior research. Specifically, the first section featured 27 items measured on a 5-point Likert scale, with responses coded from 1 (Strongly disagree) to 5 (Strongly agree). Within this section, 8 items pertained to cognitive presence, 11 to teaching presence, and 8 to social presence, all adapted from Wertz (2022). The second section involved 14 5-point Likert scale items, starting from "strongly disagree" to "strongly agree", which explored students' perceived effects of Motivation on their online English performances. Specifically, these items related to extrinsic and intrinsic motivation were adapted from Utvær and Haugan (2016), those related to academic performances were adapted from Ejubović and Puška (2019). For example, Cognitive presence, adapted from Wertz (2022), measures reflective engagement, such as, "I engage in discussions with peers to clarify my understanding of complex concepts". Teaching presence evaluates the instructor's facilitation, including, "The instructor provides clear instructions on how to complete assignments". Social presence gauges students' sense of community, as in, "I feel comfortable sharing my ideas with classmates during online sessions". Intrinsic motivation, adapted from Utvær and Haugan (2016), includes, "I enjoy learning English because it is personally fulfilling", while extrinsic motivation focuses on, "I work hard in this course because good grades are important for my future". Lastly, academic performance, adapted from Ejubović and Puška (2019), examines outcomes such as, "I feel confident that I can achieve good grades in this course".

The last section was the participants' demographics. The survey questionnaire was translated into Vietnamese to facilitate respondents' understanding.

3.3 Data analysis

Survey questionnaires, including the Consent Form to show the participants' willingness to participate in the study, were administered to participants via Google Forms. Prior to the main study, a pilot questionnaire was conducted with forty students from the researcher's class to ensure its reliability. The results showed that all variables were above 0.7, ranging from 0.88 to 0.94, indicating that the variables exhibited good internal consistency and reliability. In other words, the instrument was reliable and suitable for further analysis.

For the primary data collection phase, Smart-PLS 4.0 was deployed to assess the relationships and impacts of independent variables on dependent variables. PLS-SEM was selected due to its appropriateness for explaining causal-predictive relationships between variables, particularly in complex models and when dealing with small sample sizes (Hair Jr et al., 2017).

4. Results

5.1 Instrument Reliability and Validity

All exogenous and endogenous variables should ensure the indicator reliability (factor loadings should be greater than .70), intrinsic consistency reliability (Cronbach's Alpha score should be larger than .70), and the convergent validity, variance inflation factor (VIF) values, and discriminant validity - HTMT correlations < 0.9 (Henseler et al., 2015). These values are demonstrated as follows in Table 2.

Table 2 indicated all constructs met the instrument reliability and validity since each construct met the indicator reliability (>0.7), only one variable TP3 is slightly below 0.7 which was retained since it contributed to the composite reliability and overall validity of the construct (Haji-Othman & Yusuff, 2022), internal reliability (Cronbach's Alpha > 0.7, CR > 0.7), and the convergent validity (AVE > 0.5) (Hair Jr, et al., 2021).

The discriminant validity of scale was measured to ensure that the model variables differ from another. The HTMT of each item should be lower than 0.9 (Henseler et al., 2015). After the initial analysis, Items EM5, EM6, IM6, IM7, TP11, AA1, and SP1 were deleted since they resulted in construct collinearity. After the second analysis, all constructs met discriminant validity criteria.

Table 3 shows that all values are less than 0.9, indicating good discriminant validity.

Collinearity analysis

The variance inflation factor (VIF) should be lower than 3 (Hair Jr. et al. 2021) to ensure that the collinearity issues did not arise.

Table 4 indicated that many bivariate correlations are greater than 3 (CP-AA, IM-AA, SP-AA, SP-AA, SP-EM, SP-IM, TP-AA, TP-EM, TP-IM). Nonetheless, "if all VIFs resulting from a full collinearity test are equal to or smaller than 3.3, the model can be considered free of common method bias" (Kock, 2015, p.7). The full collinearity test results are presented in Table 5.

5.2 Structural model analysis and hypothesis testing

In order to evaluate the structural model, the coefficient of determination R^2 ($0.25 < R^2 < 0.9$) and the path coefficients should be examined (Hair et al., 2019).

Table 6 shows that the R^2 values of EM, IM and AA were 0.56, 0.58, and 0.28 respectively. This means that the proposed variables of the structural model were fairly satisfactory (Hair et al., 2019).

Table 2 - The reliability and validity of the instrument.

Dimensions	Items	Factor loadings	Cronbach's α	CR	AVE
Cognitive presence (CP)	CP1	0.827	.937	.937	.693
	CP2	0.834			
	CP3	0.840			
	CP4	0.856			
	CP5	0.802			
	CP6	0.855			
	CP7	0.836			
	CP8	0.809			
Teaching presence (TP)	TP1	0.774	0.937	.939	0.615
	TP2	0.803			
	TP3	0.644			
	TP4	0.814			
	TP5	0.802			
	TP6	0.820			
	TP7	0.780			
	TP8	0.814			
	TP9	0.836			
	TP10	0.785			
	TP11	0.735			
Social presence (SP)	SP1	0.816	.931	.935	.675
	SP2	0.792			
	SP3	0.779			
	SP4	0.876			
	SP5	0.787			
	SP6	0.878			
	SP7	0.793			
	SP8	0.841			
Extrinsic motivation (EM)	EM1	0.809	0.888	.894	0.642
	EM2	0.819			
	EM3	0.789			
	EM4	0.871			
	EM5	0.771			
	EM6	0.741			
Intrinsic motivation (IM)	IM1	0.873	0.950	.951	0.741
	IM2	0.885			
	IM3	0.887			
	IM4	0.877			
	IM6	0.864			
	IM7	0.840			
	IM8	0.860			
Academic performance (AA)	AA1	0.900	0.924	.926	0.814
	AA2	0.917			
	AA3	0.901			
	AA4	0.891			

Table 3 - Discriminant validity.

	CP	EM	IM	SP	TP
AA					
CP	0.506				
EM	0.538	0.806			
IM	0.431	0.810	0.835		
SP	0.519	0.762	0.646	0.559	
TP	0.521	0.833	0.754	0.660	0.866

Table 4 - Evaluating Collinearity of Scale and Model Fit.

	AA	CP	EM	IM	SP	TP
Academic Achievement (AA)						
Cognitive presence (CP)	4.033		2.666	2.666		
External motivation (EM)	2.909					
Internal Motivation (IM)	3.038					
Social presence (SP)	3.099		3.072	3.072		
Teaching presence (TP)	4.095		3.873	3.873		

Table 5 - A Full Collinearity Test.

	Random
Academic Achievement (AA)	1.291
Cognitive presence (CP)	2.765
External motivation (EM)	1.241
Internal Motivation (IM)	2.252
Social presence (SP)	
Teaching presence (TP)	1.440

The VIFs of all items are smaller than 3, ensuring no collinearity issue.

Table 6 - R^2 Values.

Dimensions	R^2	R^2 Adjusted
External motivation (EM)	0.57	0.56
Internal Motivation (IM)	0.58	0.58
Academic Achievement (AA)	0.30	0.28

Hypotheses Testing

Tables 7 and 8, and Figure 2 show the path coefficients and p-values for each hypothesis. In other words, the tables indicated the direct, indirect, and total effects of the exogenous variables on the endogenous variables. In particular, as regards cognitive presence, Table 7 reveals that it had direct positive effects on both external and internal motivations (β=0.508, P=0.000<0.05 and β=0.731, P=0.000<0.05 respectively); hence H1a and H1b were confirmed. However, no correlation between cognitive presence and students' English performances was found (p = 0.611 > 0.05). In contrast, H2 proposing a link between CP and AA, was rejected with a non-significant p-value of 0.611.

Regarding Teaching presence, Hypotheses H3a and H3b proposed the effects of TP on EM and IM, respectively. H3a was supported with a path coefficient of 0.310 and a significant p-value of 0.000, indicating a positive relationship. However, H3b was rejected (P=0.163>0.05). Similarly, Hypothesis H4 examining the effect of TP on AA was rejected due to an insignificant p-value of 0.444.

Regarding Social presence, Hypotheses H5a and H5b, which suggested the impact of SP on EM and IM, were both rejected with p-values of 0.702 and 0.221 respectively. Hypothesis H6 proposing the impact of SP on AA was also rejected (P=0.068>0.05).

Hypothesis H7a proposing the impact of external motivation on academic achievement, was supported (β=0.258, P=0.019<0.05). In contrast, hypothesis H7b, suggesting a positive effect of internal motivation on academic achievement, was rejected (P=0.876>0.05).

The study also aimed to examine the mediating role of external and internal motivations on students' academic achievements, hence indirect path coefficients were performed, only two positively significant effects were found. The results were illustrated in Table 8.

Overall, the study highlights the significant role of cognitive and teaching presence in enhancing external motivation, while also emphasizing the critical impact of external motivation on academic achievement in synchronous online EFL learning environments. However, the anticipated positive effects of social presence and internal motivation on academic outcomes were not supported by the findings.

5. Discussion and Conclusions

This study aimed to investigate how the elements of the Community of Inquiry affect external and internal motivation, as well as academic achievements, among EFL students in synchronous online learning. Additionally, the study explored the mediating role of motivational factors in academic achievement. The results indicated that cognitive presence significantly enhances both external and internal motivation (H1a and H1b), aligning with findings by Tokan & Imakulata (2019), who observed that intrinsic motivation directly influences cognitive processes. However, cognitive presence did not have a direct impact on academic performance (H2), which was consistent with existing studies (e.g., Doo et al., 2023; Galikyan & Admiraal, 2019), confirming that cognitive presence does not have a straightforward relationship with academic success. Echoing Widiatmaka (2021), who identified cognitive presence as a mediator between motivation and performance, our study also found a significant indirect influence of cognitive presence on academic performance (H2).

The study also revealed that teaching presence significantly impacted external motivation (H3a) but had no significant effect on internal motivation (H3b) or academic performance (H4).

Table 7 - Hypotheses Testing Results.

Hypothesis	Paths	Path Coefficients	p-value	Results
H1a	CP->EM	0.508	0.000	Supported
H1b	CP->IM	0.731	0.000	Supported
H2	CP->AA	0.067	0.611	Rejected
H3a	TP->EM	0.310	0.000	Supported
H3b	TP->IM	0.132	0.163	Rejected
H4	TP->AA	0.104	0.444	Rejected
H5a	SP->EM	-0.029	0.702	Rejected
H5b	SP->IM	-0.103	0.221	Rejected
H6	SP->AA	0.203	0.068	Rejected
H7a	EM->AA	0.258	0.019	Supported
H7b	IM->AA	-0.018	0.876	Rejected

Table 8 - Indirect path coefficients.

Indirect paths	Path Coefficients	p-value	Results
TP -> EM -> AA	0.080	0.043	Supported
CP -> EM -> AA	0.131	0.023	Supported

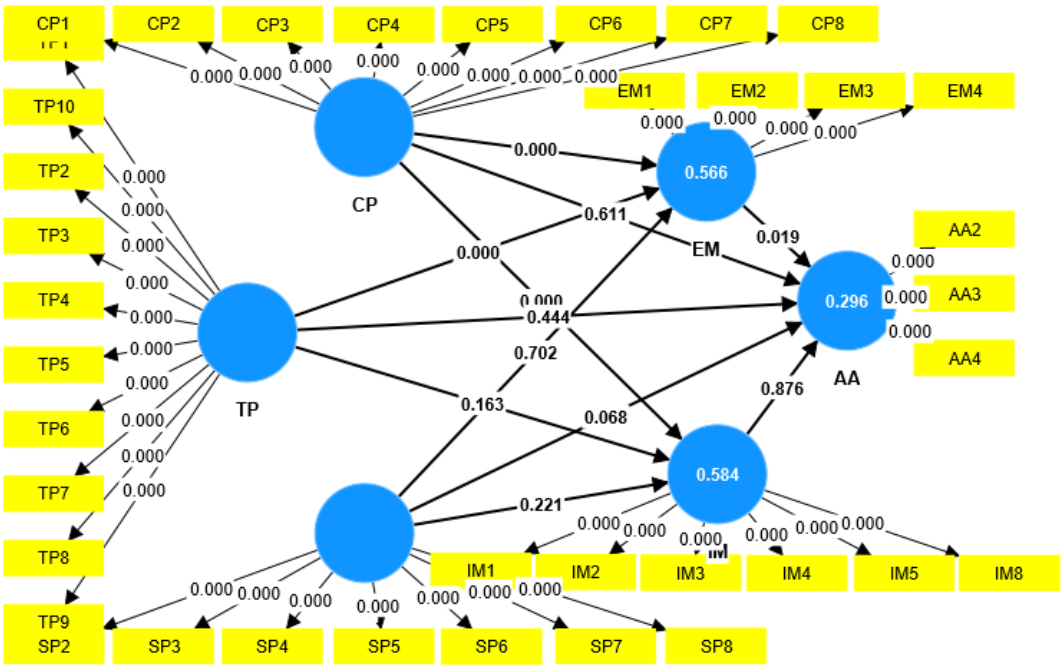

Figure 2 - Structural model analysis.

This suggests that the instructor's role in guiding and facilitating learning activities boosts motivation driven by external rewards or career incentives, but it does not necessarily enhance intrinsic motivation, such as personal enjoyment or satisfaction, nor does it directly improve academic achievement. This finding supports prior research, such as that by Lee & Lim (2023), Shi et al. (2021), and Werang et al. (2022), who showed that teaching presence positively affects external motivation (H3a). However, our findings are not fully aligned with those of Law et al. (2019), who found that teaching presence influenced motivation indirectly by first enhancing social presence, which in turn boosted cognitive presence and learning performance.

In contrast, no significant relationships between social presence and motivation or academic performance were found (H5a, H5b, and H6). This contradicts several studies that have highlighted the positive influence of social presence on student engagement and motivation in online learning. For example, research by Poquet et al. (2018), Widjaja & Chen (2017), and Mitchell et al. (2021) emphasized the role of social presence in fostering a sense of community and open communication, which can enhance motivation and engagement. Nevertheless, the literature on the correlations between social presence, motivation, and academic performance is mixed, as seen in studies by Kreijns et al. (2022) and Dinh (2023).

The inconsistency in our findings may be attributed to several methodological factors. Firstly, this study focused specifically on synchronous online learning in the context of EFL, which may differ from other online learning environments in the role social presence plays. Secondly, the study's participants were EFL students from a private university in the Mekong Delta region of Vietnam, aged 18-19. Cultural, age-related, and academic factors specific to this group could have shaped their perception of social presence. Thirdly, the study utilized a modified version of a questionnaire from Wertz (2022) to measure social presence, and the design of the questionnaire could have influenced the results. Lastly, because the study concentrated on synchronous online learning, the dynamics of social presence may vary from asynchronous learning, where the immediacy of interaction might differ.

Additionally, the study found that academic performance is positively influenced by external motivation (H7a), but internal motivation did not show a significant correlation with academic performance (H7b). This finding aligns with previous studies that have underscored the importance of motivation in enhancing academic performance in online learning settings. For example, Wang et al. (2023) found that learning motivation positively affected online accomplishments, in which academic self-efficacy and experiences acted as mediators. The lack of a significant impact from internal motivation may reflect the unique nature of synchronous online EFL learning, where external incentives, such as grades or recognition, may play a more prominent role in motivating students compared to intrinsic satisfaction.

In summary, this research underscores the significant role of cognitive and teaching presences in motivating students in online EFL learning environments. While these factors did not directly impact academic performance, they played a crucial role in driving external motivation. The findings also emphasize the importance of external motivation in academic success in synchronous online learning, suggesting that strategies to boost external motivation could improve student outcomes. However, the anticipated effects of social presence on motivation and performance were not observed, indicating that the impact of social interaction and community feeling may not be as influential as previously believed.

6. Limitations and Future Research

The study acknowledges some limitations. First, although the participants' background information was described clearly, this research only recruited EFL students from a university in the Mekong Delta of Vietnam, which may impose certain generalization restraints. Second, the methodology used in the current study is cross-sectional; thus, it makes it impossible to determine change over time and therefore causes exogenous and endogenous variables. The reliance on self-reported data may also incur biases related to inaccurate self-assessment.

Therefore, future research should incorporate longitudinal designs to gain deeper insights into the causal relationships and long-term impacts of cognitive and teaching presences on academic performance, as well as the mediating role of external motivation between teaching and cognitive presences and students' English achievement. Additionally, expanding the sample to diverse students of educational backgrounds and academic years could enhance the generalizability of the findings. Last but not far from the least, qualitative studies could provide deeper insights into the nuances of how these presences affect motivation and performance in synchronous online learning environments.

7. Implications

The findings of this study provide several implications for educators and policymakers. Given the significant impact of cognitive and teaching presence on external motivation, educators should focus on enhancing these aspects through well-designed instructional strategies and active facilitation in students' cognitive thinking. For example, teachers may give more tasks that require students to make use of prior knowledge to provide innovative solutions to problems, or tasks related to the goals or objectives of the course, which can motivate them to engage more in the learning process. More importantly, tasks that require cognitive thinking should be prioritized in the synchronous online modes (β=0.508 vs. β=0.310). As such, institutions should provide training and teaching resources to help instructors create more engaging and motivating online learning experiences. Moreover, the strong link between external motivation and academic performance suggests that reward systems could be effective in boosting students' performance in online settings. Finally, the unexpected findings regarding social presence call for further research to confirm or re-evaluate its role in synchronous online education, potentially leading to the development of new strategies to foster meaningful interactions that can positively impact learning outcomes.

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