






Factors Associated with the Motivation and Attitude Towards Learning English in Higher Education: Structural Equation Modeling

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Abstract

This study aims to analyze the factors associated with motivation and attitude towards English learning through the application of structural equation modeling (*SEM*). A quantitative, ex post fact, cross-sectional and explanatory study was carried out on 1202 university students. Eight motivational factors were examined, namely: Motivational Intensity (*MI*), Attitude towards Learning English (*ATLL*), Integrative Orientation (*IntO*), Instrumental Orientation (*InsO*), Interest Towards Foreign Languages (*ITFL*), Evaluation of English Teaching (*EET*), Desire to Learn English (*DLE*), Evaluation of the English Course (*EEC*). The multiple regressions showed that *EET*, *DLE*, *InsO*, and *EEC* are predictors of the *MI*. It was found that *DLE*, *InsO*, and *EEC* are predictors of *ATLL*. The *SEM* showed a weak positive influence of *InsO* on *DLE*, *ITFL*, *EET*, *EEC*, *MI* and *ATLL*. *IntO* had a weak positive impact on *DLE*, *EET*, *EEC*, and *ITFL*. There was a weak positive impact of *DLE* on *ITFL*, *ATLL* and *MI*, and it had a strong effect on *EEC*. Finally, *EET* had a weak positive effect on *MI*, whereas *EEC* had a weak positive impact on *ATLL* and *MI*. This research provided information that serves to understand the factors affecting the intensity of motivation and attitude in L2 learning.

Keywords: attitude, foreign language, motivation, synchronous encounters, university students

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1. Introduction

Motivation pertains to a psychological inclination that individuals possess to attain a self-established goal in their learning, their determination to persist in their endeavor, and their continuous exertion to accomplish their goal (Gardner, 2010). Motivation is the pivotal element that encourages individuals to engage in the process of acquiring a second or foreign language (L2) (Dörnyei, 2005; Kirkpatrick et al., 2024; Wu, 2022) and urges them to persist in the process even when faced with difficulties. Becoming fluent in a second language is a challenging task for individuals (Pourgharib & Shakki, 2024; Zheng et al., 2018), and motivation plays a crucial role in achieving this goal at the university level (Azar & Tanggaraju, 2020). According to Gardner (1985), Cocca et al. (2017), Azar and Tanggaraju (2020), and Escobar-Fandiño et al. (2019), the primary factors that influence L2 learning are an individual's motivation and attitude. The current study specifically concentrated on these aspects.

According to multiple researchers, the incorporation of both internal and external factors is crucial for the learning processes that facilitate the acquisition of language skills in a second language (Arán, 2021; Azar & Tanggaraju, 2020; Derakhshan & Shakki, 2024; Khajavy et al., 2016; Tran et al., 2023;; Wei & Xu, 2022; Zheng et al., 2018). The most significant predictors of L2 learning are motivation and attitude (Jiao et al., 2022; Solhi et al., 2024; Turker et al., 2021; Xiu & Thompson, 2020; Zheng et al., 2018). Escobar-Fandiño et al. (2019) state that it is worth noting that there exists a considerable body of research focused on motivation from psychological and educational perspectives. Motivation has a great impact on language learning, since it acts as an engine that triggers effort, desire to learn (Arán, 2021; Pishghadam et al., 2021), willingness to use the language in class (Khajavy et al., 2016) and increases self-confidence and desire to achieve language goals (Jiao et al., 2022).

Nevertheless, there is a lack of extensive literature on the analysis of the effects and relationships among the various factors that make up motivation in online English learning through SEM methodology (Al-Obaydi & Pikhart, 2022; Pham, 2021). This alignment with the research context highlights the relevance of investigating motivation in English language learning through digital tools. Consequently, understanding and grasping the arrangement of the motivational construct within the framework of the current study is essential, owing to its influence on the attainment of linguistic objectives (Arán, 2021; Cao & Meng, 2020; Escobar-Fandiño et al., 2019; Khajavy et al., 2016; Zheng et al., 2018; Shan, 2020; Wu, 2022).

Within the scope of the study, instructing English poses a formidable obstacle for

educators because students lack the liberty to select their preferred language of study, thus, demanding English language proficiency as a compulsory component of graduation across diverse academic disciplines.

In addition, there is a belief that an individual's motivation is enough to drive their L2 learning, as they have a desire to use it for communicative purposes (Feng & Rawian, 2023; Gómez et al., 2022). Nonetheless, English is unnecessary for the social interactions, academic pursuits, and commercial processes of Colombian inhabitants. Indeed, it is an activity that occurs almost exclusively within the classroom environment, specifically focused on second language acquisition, highlighting the significance of the teacher-student relationship in the educational process (Khajavy et al., 2016; Meng, 2021; Zheng et al., 2018). The presence of divergent characteristics among learners constitutes a fundamental element in the process of acquiring a second language (Anjomshoa & Firooz, 2015; Ghapanchi et al., 2011), and a variety of factors are related to personality traits, beliefs regarding second language learning, anxiety levels (Gómez et al., 2023), learning rhythms and styles, curiosity, specific communicative needs, willingness to communicate in a second language, aptitude, attitude, and motivation (Momenzadeh et al., 2023).

The model proposed by Cocca et al. (2017) was used for this study, employing the instrument known as the 'Attitude/motivation test battery instrument in a Mexican environment', as detailed in the method. The use of a constructed hypothetical SEM facilitates a deeper understanding of the construct of L2 learning motivation by examining causal and effect relationships. According to Byrne (2012), SEM is a statistical technique used for analyzing the relationships between variables, yielding results of substantial significance and validity. The conceptual framework of this SEM is rooted in intrinsic motivation (Azar & Tanggaraju, 2020; Oz, 2016), extrinsic motivation (Escobar-Fandiño et al., 2019; Khajavy et al., 2016), desire to learn (Oz, 2015), interest towards foreign languages (Kuznetsova & Soomro, 2019; Zheng et al., 2018), evaluation of English teaching (Malik & Pervaiz, 2023; Meng, 2021), and the evaluation of the English course (Oz, 2016; Zheng et al., 2018), which influence the intensity of motivation and attitude in L2 learning.

Consequently, the aim of the current research is to analyze the factors associated with motivation and attitude towards English language learning through the use of structural equation modeling (SEM).

Research Questions

1. What are the predictors of motivation intensity and attitude in English language learning among university students based on the motivational construct analyzed?
2. How are the dimensions of English language learning motivation arranged in an SEM and how are they interrelated?

2. Literature Review

This section presents the definitions of the variables that make up the SEM, followed by a review of studies on motivation among university-level English language learners. In line with the social-cognitive theory of learning, motivation is a complex psychological construct that consists of multiple biological and acquired variables within an individual (such as needs, expectations, lived experiences, and beliefs), all of which affect their behavior (Cocca et al., 2017). Motivation encompasses various elements, including cognition, higher nervous activity (language, thought, and behavior), emotional aspect, and stable personality traits that are necessary for the interaction between an individual and their environment (Escobar-Fandiño et al., 2019).

In this regard, motivation is focused on meeting an individual's needs, powered by an internal drive that propels, inspires, sustains, and guides them towards reaching a specific goal. When it comes to acquiring a second language, motivation can be defined as the individual's desire, effort, and positive attitude towards learning it (Gardner, 1985). It is considered the most influential factor in achieving positive outcomes in relation to the established learning objectives (Azar & Tanggaraju, 2020; Oz, 2016). Intrinsic motivation drives individuals who are attracted to or have an interest in learning the English language because of their inner desire or pleasure in the activity. Also, Shan (2020) explains that individuals, who possess this motivation, experience fondness and enthusiasm, together with exhibiting the inclination to gain the target language.

This signifies their unwavering commitment to pursue it, expecting no immediate gratification, as their primary motivation stems from personal fulfillment. Nevertheless, this type of motivation is prone to decline during the various stages of L2 acquisition (Shan, 2020), owing to the challenges inherent in this process. According to Gardner (1985), motivation for second language acquisition is influenced by three factors: the intensity of motivation towards learning the target language, the desire to learn it, and the attitude towards achieving its purpose.

The concept of motivational intensity pertains to the level of effort and enthusiasm displayed by individuals in their learning endeavors (Hou, 2018). This is influenced by the task's level of difficulty (Hutagalung et al., 2020), and has a positive effect on their goals, perceived self-efficacy, and attitude towards the target language (Wang et al., 2022). Therefore, students who possess a greater level of motivational intensity purposefully employ learning strategies to enhance their language proficiency more rapidly compared to individuals with low motivational intensity (Oxford, 1993). In this instance, effort pertains to an individual's resolve to acquire the L2, which will consequently strengthen their willingness to enhance their linguistic and communicative proficiency in the L2 (Wei & Xu, 2022).

The concept of attitude towards learning refers to an individual's positive psychological disposition, which, when combined with consistent exposure to the L2, can facilitate the enhancement of language skills in the target language (Cocca & Cocca, 2017; Khorsheed, 2021), and can impact their motivation and exertion towards attaining the proposed educational objectives (Shidrah et al., 2022; Wang et al., 2022). According to Gardner (1985), Gardner (2010), and Hashemi and Hadavi (2014), there are two motivational orientations among L2 learners: instrumental orientation and integrative orientation. Individuals with an instrumental orientation seek to acquire the L2 because of a utilitarian interest, showing a desire to study it for practical benefits such as job opportunities, career advancement, or exam success, representing extrinsic motivation (Cocca et al., 2017).

In contrast, those who possess an integrative orientation are driven to acquire the L2 language intending to comprehend and becoming a part of the L2 speakers' culture, exhibiting a desire to be part of a bilingual community. The latter causes continuous engagement with a bilingual community to sustain this motivation within the individual. Motivation is associated with individual variances, which align with specific psychological traits or attributes that distinguish individuals from one another (Dörnyei & Ushioda, 2011). Among these, attitude, motivational intensity, and personality contribute to understanding why certain L2 learners achieve higher performance levels than others (Hou, 2018; Martinović, 2018; Wei & Xu, 2022). Personality traits are often associated with tendencies, such as integrative and instrumental motivation (Cao & Meng, 2020; Lens et al., 2009; Shan, 2020), and any of these approaches effectively instill the desired disposition for accomplishing linguistic goals during L2 learning.

The positive evaluation students have of their teacher is another contributing factor to

their academic performance, as the teacher plays a crucial role in L2 learning (Khajavy et al., 2016; Wei & Xu, 2022; Wu, 2022). The teacher's use of resources impacts the motivational intensity of a student (Wang et al., 2022), as well as the instructional approach (Shan, 2020), the assistance and reinforcement provided through corrective feedback (Zare et al., 2020), teacher emotional support (Cao & Meng, 2020), and the facilitation of an ideal learning environment (Gómez et al., 2022). Additionally, an individual's motivational intensity can be influenced by the appraisal of the English class by the student (Dörnyei & Ushioda, 2011; Mulyono & Saskia, 2021; Wang et al., 2022).

As a result, the digital context in which L2 learning occurs should enable students and the instructor to engage in meaningful interactions, while benefiting from optimal physical, human, and cultural conditions, enhancing the development of communicative competence. Regarding the aspiration to acquire a second language, it is a latent factor that cannot be directly measured in an individual, as it is influenced by their attitude and determination to learn the language (Hadavi, 2014; Hou, 2018; Shidrah et al., 2022).

2.1. Studies Related to Factors Influencing Motivation in Language Learning

The SEM technique has been utilized to analyze the essence of motivation in L2 acquisition among university students (Dorner, 2022; Hermessi, 2023; Peng, 2023; Shidrah et al., 2022; Wang et al., 2022). However, a thorough literature review yielded no research that examined the internal structure of motivation using the model proposed by Cocca et al. (2017). The operationalization was carried out using the instrument 'Attitude/motivation test battery instrument in a Mexican environment'. Wang et al. (2022) examined the factors influencing motivation intensity (*MI*) and motivation in English language learning, in a study conducted in Hong Kong involving a sample of 208 students. The findings indicate that *MI* has a positive impact on intrinsic orientation (*IO*) ($\beta = .16$) and motivation for learning an L2 (*MLL2*) ($\beta = .41$), but it has a negative effect on the learning situation (*LS*) ($\beta = -.51$). Furthermore, it was discovered that their perceptions of native English speakers (*PNES*) had a positive impact on *IO* ($\beta = .16$), while *MLL2* had a positive influence on *PNES* ($\beta = .41$), *IO* ($\beta = .46$), and English culture ($\beta = .78$).

Peng (2023) conducted a study in Malaysia with a sample of 181 students to explore the influence of instrumental orientation (*InsO*), integrative orientation (*IntO*), and evaluations about the English course and the teacher (*EEC*; *EET*) on motivation intensity (*MI*). The findings suggest that *MI* is positively influenced by *InsO*, *IntO*, *EEC*, and *EET*,

since ($\beta = .150$; $p < .001$), ($\beta = .155$ / $p < .004$) and ($\beta = .405$ / $p < .000$), respectively. Additionally, it was discovered that *InsO*, *IntO*, *EEC*, and *EET* serve as predictors of *MI*. Shidrah et al. (2022) conducted a study on Desire to Learn English (*DLE*), *InsO*, Language Anxiety (*LA*), and Attitude Toward Learning English (*ATLL*) using a sample of 307 students from Malaysia and Thailand. The examination revealed that *InsO* had a favorable influence on *DLE* ($\beta = .372$; $p = .000$), (*ATLL*) contributes positively to the enhancement of the *DLE* ($\beta = .428$; $p = .000$) and *LA* positively affects the *ATLL* ($\beta = .105$; $p = .000$). According to the linear regressions, *ATLL*, *LA*, and *InsO* demonstrated significant predictive ability for *DLE* variance, explaining 55.6% of the variance ($R^2 = .556$).

The study conducted by Hermessi (2023) examined the correlations among Intrinsic Orientation (*IO*), Extrinsic Orientation (*EO*), Motivation Intensity (*MI*), L2 Learning Experience (*L2LE*), and L2 Academic Performance (*L2AP*). The findings indicate that *IO* has a positive influence on *IM* ($\beta = .15$) and *L2AP* ($\beta = .32$), while *EO* has a negative impact on *MI* ($\beta = -.17$) and *L2AP* ($\beta = .11$). In addition, it was observed that *L2LE* had a negative effect on *OI* ($\beta = -.11$) and a positive impact on *L2AP* ($\beta = .11$), *MI* ($\beta = .62$), and *EO* ($\beta = .32$). Dorner (2022) conducted a study analyzing the motivational profile of 208 Hungarian students (middle and older adults) and the factors affecting their *MI*. The findings of the study show a positive influence of *DLE* and *IntO* on *ATLL*, with a value of ($\beta = .59$) and ($\beta = .23$), respectively. Moreover, the findings showed a negative association between *ATLL* and *MI* ($\beta = -.57$), while a positive relationship was observed between L2 learning goals (*LGL2*) and *MI* ($\beta = .31$).

3. Methodology

3.1. Research Design

The research is grounded in a quantitative paradigm, specifically ex post facto, employing a cross-sectional and explanatory design. Through implementing the simple convenience sampling technique, the participants were selected. The aim was to investigate the factors connected to motivation and attitude towards learning English by using Structural Equation Modeling (*SEM*).

3.2. Study Sample

The research comprised a sample of 1202 students enrolled in an English course, which

is a mandatory component of the technical, technological, and professional programs offered at a public university in Medellin, Colombia ($N = 1202$). Among the population, 499 individuals were men (41.5%) and 703 were women (58.5%), with ages ranging from 17 to 46 years old ($M = 23.24$; $SD = 6.21$). The distribution of the sample occurred in three population strata, based on the English subject they were enrolled in during the research period: Basic A1 ($n = 334$; 41.5%), Upper basic A2 ($n = 237$; 29.5%) and *Intermediate B1* ($n = 233$; 28.8%).

The English courses have been categorized according to the proficiency levels set forth in the Common European Framework of Reference (Consejo de Europa, 2002). It is imperative to highlight the significance of making accreditation of English language proficiency a mandatory graduation requirement across all academic programs, with the Institution's Language Center being given the responsibility of administration. Furthermore, it is necessary to explain that the methodological approach to learning English corresponds to 'Flipped Classroom in Synchronous Encounters', which require students to prepare and study the content of the class in advance, and the time of the synchronous meetings is used by the teacher to develop linguistic experiences for the development of the L2 through various digital video conferencing platforms (Zoom, Microsoft Teams or Meets).

3.3. Data Collection Instruments

The study employed the 'Attitude/motivation test battery instrument in a Mexican environment' developed by Sandoval-Pineda (2011) and validated for the Mexican context by Cocca et al. (2017). The reason for using this questionnaire is the cultural and contextual similarities between Colombia and Mexico, as well as its validation in Spanish. Furthermore, a validated instrument specifically designed for the Colombian context to measure motivation in English language learning was not found in the existing literature. The questionnaire comprises 43 statements distributed across 9 dimensions, which assess motivation towards learning English in the university setting. Participants are required to answer the questionnaire items on a Likert-type scale, which spans from 1 showing 'Strongly disagree' to 5 showing 'Strongly agree'. Increased scores show heightened levels of motivation across all established dimensions.

Cocca et al. (2017) reported the instrument reliability index in their study, which resulted in a total Cronbach's alpha value of .874 and the McDonald's Omega coefficient showing a value of .890. As stated by these authors, the construct validity of the

instrument showed a satisfactory level of fit: $RMSEA = .055$; $CFI = .989$; $NNFI = .988$. The dimensions that compose the questionnaire are the following: (1) Interest in foreign languages. This construct illustrates the inherent inclination of individuals towards learning, motivated by enjoyment rather than monetary rewards. (2) Motivation intensity. The aim of this construct is to measure the extent to which individuals endeavor to enhance their language proficiency in the L2. (3) Evaluation of English teaching. It has to do with the perceptions that L2 learners have of the English classroom, encompassing the teacher's proficiency and ability to instruct and create a suitable learning environment. (4) Attitude towards language learning. The aim of this construct is to gauge the extent of English language learning readiness.

(5) Attitude towards people who have English as their native language. This deals with gauging people's attitudes towards native English speakers. (6) Integrative Orientation. This construct aims to evaluate the significance individuals attach to learning English for cultivating personal relationships and acquiring knowledge about its corresponding culture. (7) Desire to learn English. This construct is employed to evaluate the degree of enthusiasm for L2 learning, intending to attain mastery. (8) Evaluation of the English course. It aims to analyze L2 learners' perceptions of the classroom environment and the subsequent influence on their inclination to continue English learning in the future. (9) Instrumental Orientation. This construct assesses how motivated individuals are to learn English because of the potential advantages it offers in terms of their academic, professional, and social spheres. It is of utmost importance to clarify that dimension (5) was excluded from the construction of the *SEM*, given the absence of English-speaking teachers or foreigners in the research context.

3.4. Procedure and Data Analysis

Upon obtaining the endorsement of the Bioethics Committee to administer the questionnaire to the students, the researchers dispatched the instrument to 2851 students who were enrolled and active in the English courses using a Google Forms form sent through the institutional mail. Among the respondents, 1202 individuals completed the form voluntarily. The mail sent included the study's purpose, informed consent, and the principal investigator's data. Participants completed the self-administered questionnaire within an estimated duration of 8 minutes. Data collection occurred during the first half of the year 2023, spanning the months of April to May. The analysis was conducted using *IBM SPSS v. 29*. The dataset did not contain any missing values. Using *IBM SPSS v. 29*,

we performed descriptive statistics and calculated zero-order correlation coefficients using Pearson's coefficient.

Additionally, we checked the normality of the variables with the Kolmogorov-Smirnov test. We verified the assumptions of linearity, independence, homoscedasticity, normality, and non-collinearity, and then performed a series of multiple linear regression analyzes to estimate the predictors for each factor of the instrument. These findings served as the basis for constructing the hypothetical model. A path analysis employing *SEM* was carried out to discover the cause-and-effect relationships between the factors. To establish a reliable measurement model, an exploratory factor analysis (*AFE*) was initially performed on a randomly selected 50% of the participants ($n = 600$), incorporating all items of the instrument. Principal component factorization and the Promax rotation method were employed for this purpose. The Bartlett test of sphericity and the Kaiser-Mayer-Olkin measure of sampling fit (*KMO*) showed that the items showed a satisfactory level of interrelation, allowing for the continuation of factor analysis.

The decision to exclude items was determined by their communalities (values below .2) and factor loadings (coefficients below .4). The pattern matrix of this model was imported into IBM AMOS version v. 26, the analyzes were executed to ascertain the measurement model that exhibited the highest goodness-of-fit indices using the maximum likelihood method. In addition, the evaluation included composite reliability (*CR*), average variance extracted (*AVE*), and maximum shared variance (*MSV*). The importation of the standard matrix of the instrument measurement model was performed in IBM AMOS v. 28. Based on this measurement model, *SEM* modeling and path analysis were started using the remaining 50% of the sample ($n = 601$). The verification of the sample's multivariate normality involved conducting an evaluation of skewness using Mardia's coefficient. Given that the value exceeded " $p(p+2)$ ", where " p " represents the number of observed variables, normality was not established (Bollen, 1989), prompting the utilization of the maximum likelihood method.

To assess the correspondence between the data and the proposed model, the following measures were determined: the chi-square ratio to degrees of freedom (*CMIN/DF*), the root mean square residual (*RMR*), the goodness-of-fit index (*GFI*), the adjusted goodness-of-fit index (*AGFI*), the normalized fit index (*NFI*), and the comparative fit index (*CFI*). Hence, this *SEM* enables us to comprehend the motivational construct by examining the factors that impact its intensity and attitude within the university setting. Concerning the reliability of the model presented in Figure 1, The Cronbach's alpha coefficient yielded a value of .954, and the McDonald Omega coefficient was .972.

4. Results

This section shows the study's findings regarding the factors that encompass motivation and the relationships among them by using structural equation modeling. Table 1 presents the descriptive statistics for all instrument factors and the zero-order correlation coefficients between them. It is observable that all the correlations between the factors of the instrument were statistically significant, presenting coefficients with moderate to strong values. The acronyms used in Table 1 correspond to the following: *M* = Mean; *SD* = Standard Deviation; *ASY* = Asymmetry; *K* = Kurtosis; *MI* = Motivational Intensity; *EET* = Evaluation of English Teaching; *ATLL* = Attitude Towards Language Learning; *InsO* = Instrumental Orientation; *DLE* = Desire to Learn English; *EEC* = Evaluation of the English Course; *IntO* = Integrative Orientation; *ITFL* = Interest Towards Foreign Languages.

Table 1
Correlation and Descriptive Statistics that Encompass EFL Motivation

	M	SD	ASY	K	MI	EET	ATLL	InsO	DLE	EEC	IntO	ITFL
MI	3.67	.635	-.241	.557	1	.517*	.609*	.525*	.551*	.581*	.479*	.458*
EET	3.48	.863	-.438	.323		1	.366*	.381*	.356*	.517*	.375*	.344*
ATLL	3.87	.921	-.763	.555			1	.818*	.857*	.764*	.699*	.672*
InsO	4.16	.847	-1.09	1.41				1	.805*	.601*	.651*	.731*
DLE	3.83	.898	-.737	.478					1	.778*	.731*	.753*
EEC	3.34	.919	-.239	-.028						1	.663*	.578*
IntO	3.59	.872	-.419	.241							1	.679*
ITFL	4.02	.836	-.789	.716								1

Table 2. displays the outcomes of the multiple linear regression analyses, which were conducted to examine the influence of the factors and provide guidance for constructing the hypothetical model through *SEM* and path analysis. The results have been organized by presenting, in order, the factors that included the highest number of predictors. In terms of the dependent variables, the multiple regressions showed that *EET*, *DLE*, *InsO*, and

EEC are significant positive predictors, explaining 33% ($R^2 = .334$) of the variance in *MI* observed in this particular sample. Moreover, the results showed that *DLE*, *InsO*, and *EEC* handled 81% ($R^2 = .811$) of the variance in *ATLL*. Regarding the independent variables, significant and positive regressions were observed, with *EET* being explained by *InsO* and *IntO* by 19% ($R^2 = .192$) and the predictors *InsO* and *IntO* explained at 72% of the variance in *DLE* ($R^2 = .722$). In a similar vein, *DLE*, *InsO*, and *IntO* account for 63% ($R^2 = .637$) of the explanation for *ITFL*. Ultimately, including *DLE*, *InsO*, and *IntO* in the analysis resulted in a 63% predictive capability for *EEC* ($R^2 = .630$). Figures include all graphical displays of information that are not tables. Common types include graphs, charts, drawings, maps, plots, and photos. The acronyms used in Table 2 correspond to the following: *ATLL* = Attitude Towards Language Learning; *DLE* = Desire to Learn English; *EEC* = Evaluation of the English Course; *EET* = Evaluation of English Teaching; *InsO* = Instrumental Orientation; *IntO* = Integrative Orientation; *ITFL* = Interest Towards Foreign Languages; *MI* = Motivational Intensity.

Table 2
Predictors of Instrument Factors

Dependent variable	Model result	Predictors
ATTL	F (7, 1193) = 809.04; p < .001; R ² = .825	EET, MI, InsO, DLE, EEC, IntO, ITFL
DLE	F (7, 1193) = 881.22; p < .001; R ² = .837	EET, EEC, IntO, ITFL, ATTL, InsO
EEC	F (7, 1193) = 463.14; p < .001; R ² = .729	EET, MI, OInt, ATTL, InsO, DLE
EET	F (7, 1193) = 111.94; p < .001; R ² = .393	MI, ATTL, InsO, DLE, EEC
InsO	F (7, 1193) = 548.50; p < .001; R ² = .762	EET, DLE, EEC, ITFL, ATTL
IntO	F (7, 1193) = 260.65; p < .001; R ² = .602	ITFL, ATTL, DLE, EEC
ITFL	F (7, 1193) = 305.97; p < .001; R ² = .640	ATTL, InsO, DLE, IntO
MI	F (7, 1193) = 153.92; p < .001; R ² = .471	EET, ATTL, EEC

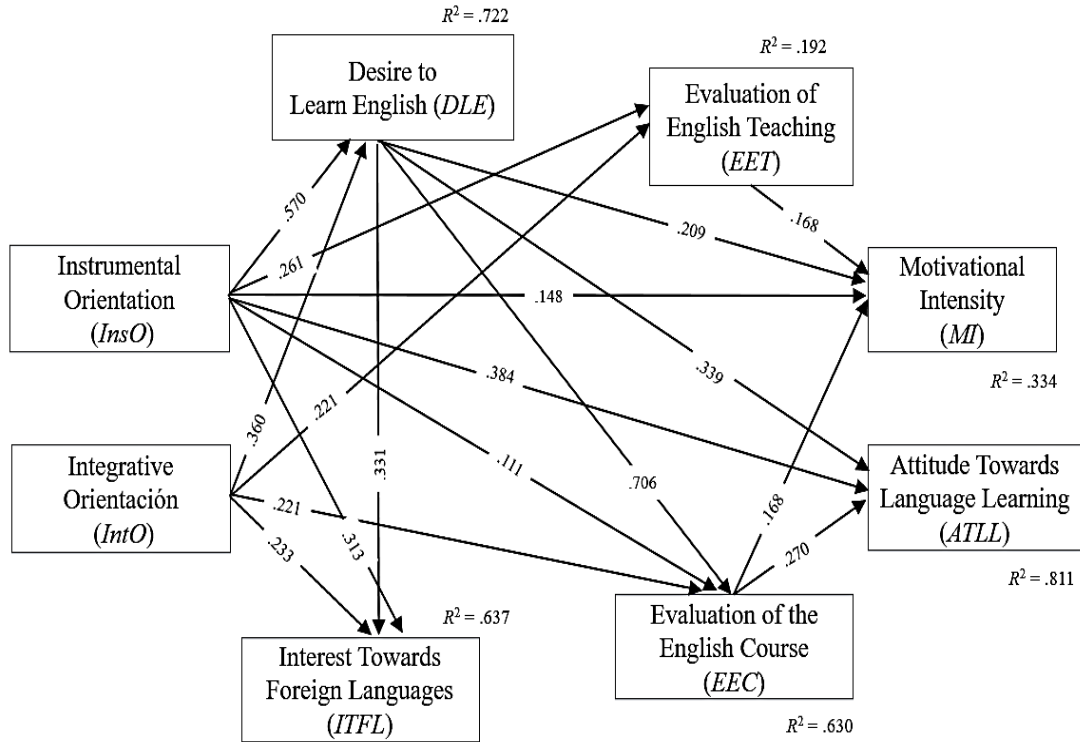
Figure 1 displays the path analysis constructed using *SEM*. Based on the results of the multiple regression analyses, the decision was made to place the *MI* and *ATLL* factors at the end of the model as dependent variables on the other factors, giving more weight to the motivational theories. These motivational aspects have a significant influence on L2 learning through synchronous encounters (Teng et al., 2021; Zhu et al., 2020;) and the use

of *ICTs* (Asiksoy, 2018). Considering their correlation with personality traits, the variables *InsO* and *IntO* will be at the forefront of the model as independent factors (Cao & Meng, 2020; Lens et al., 2009; Shan, 2020). The placement of the additional factors (*DLE*, *ITFL*, *EET*, and *EEC*) was determined based on the modifications made to the model during its development, with the goal of attaining satisfactory goodness-of-fit indices: $CMIN/DF = 2.411$; $RMR = .36$; $GFI = .936$; $AGFI = .925$; $NFI = .918$; $CFI = .95$; $RMSEA = .38$. Firstly, we have the *SEM* (Figure 1).

The findings show positive weak effects as follows: *EET* on *MI* ($\beta = .168 / p < .001$), *DLE* on *MI* ($\beta = .209 / p < .001$), *InsO* on *MI* ($\beta = .148 / p < .001$), and *EEC* on *MI* ($\beta = .168 / p < .001$). The *MEE* showed two positive moderate effects on *ATLL*: one by *DLE* ($\beta = .339 / p < .001$) and another by *InsO* ($\beta = .384 / p < .001$). In addition, there is a weak positive effect of *EEC* on *ATLL*, ($\beta = .270 / p < .001$). The findings also reveal that there is a direct relationship between an individual's perception of teacher performance and classroom environment, their desire to learn the target language, instrumental orientation, and their subsequent increase in motivational intensity.

Furthermore, the structural equation modeling results revealed a moderate positive effect of *IntO* on *DLE* ($\beta = .570 / p < .001$), as well as weak positive effects of *InsO* on *EET* ($\beta = .261 / p < .001$), *EEC* ($\beta = .111 / p < .001$), and *ITFL* ($\beta = .313 / p < .001$) respectively. Finally, *IntO* had a weak positive effect on *DLE* ($\beta = .360 / p < .001$), on *EET* ($\beta = .221 / p < .001$), on *EEC* ($\beta = .221 / p < .001$), and on *ITFL* ($\beta = .223 / p < .001$). Therefore, a positive perception of the classroom environment leads to an increased desire to learn and instrumental motivation, resulting in a higher attitude towards learning English.

Figure 1
 Hypothetical Model to Explain the Structure of Causes and Effects Among Factors



5. Discussion

The aim of the present study is to examine the factors associated with motivation and attitude for learning English by structural equation modeling. In relation to the research question concerning the determinants of motivation intensity and attitude in learning, the findings from multiple regression analysis show that *InsO*, *DLE*, *EET* 1a, and *EEC* serve as significant predictors for *MI* ($R^2 = .334 / 33\%$). Additionally, *ATLL* can be predicted with a high degree of accuracy (81% / $R^2 = .811$), using the variables *DLE*, *InsO*, and *EEC*. These findings align with the research conducted by Hutagalung et al. (2020), Hermessi (2023) and Peng (2023). This means that the teacher’s performance in synchronous encounters (Asiksoy, 2018; Zhu et al., 2020), the individual’s desire to learn the L2 (Cocca & Cocca, 2019; Shidrah et al., 2022), their aspiration to learn the L2 for practical benefits (Dörnyei & Ushioda, 2011; Wei & Xu, 2022), and their perception of the classroom environment (Chang et al., 2022; Khajavy et al., 2016;), impact on MI (personal effort).

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The correlations observed between *InsO*, *DLE*, *EET*, *EEC*, and *MI* (Table 2), as well as between *DLE*, *InsO*, *EEC*, and *ATLL*, show motivational factors that influence the language development of individuals learning English through synchronous encounters and *ICT* utilization (Mulyono & Saskia, 2021). In other words, the *InsO*, *DLE*, and *EET* are important predictors of *MI* in L2 learning. Additionally, *DLE*, *InsO*, and *EEC* are strong predictors of attitude. Both, *MI* and attitude are essential in L2 learning (Kazantseva et al., 2016; Lee & Drajadi, 2019).

In relation to the second research question, which focuses on the organization and interrelation of dimensions in English language learning motivation within an *SEM*, the study revealed a positive influence of *InsO* on the factors of *DLE*, *EET*, *MI*, *ATLL*, *EEC*, and *ITFL*. This finding aligns with the conclusions drawn by Peng (2023) and Shidrah et al. (2022). This result means that an individual's practical goals that prompt them to learn the L2 (passing the English assessment which is a grade requirement in the research context, getting a job or promotion, and improving his/her social status), produce an effect on the following aspects: aspiration or longing to learn the target language (*DLE*), positive perception of class dynamics in relation to their language goals (*EET*), level of effort invested in learning (*MI*), behavior that favorably predisposes towards the effort involved in learning an L2 (*ATLL*), perception of the learning setting, the quality of the content and the impact of these on their intention to persist in the course (*EEC*), and intrinsic motivation (*ITFL*).

In fact, *InsO* demonstrated the highest mean motivation score among the analyzed factors, in line with previous empirical studies by Azar and Tanggaraju (2020) and Kazantseva et al. (2016). The outcome is ascribed to the instrumental motives of the students involved in this study, which align with the assessment of English proficiency as a mandatory criterion in all academic programs within the context of this research, considering their professional goals and academic ambitions. The results of the *SEM* also show that *IntO* has a favorable and direct influence on *DLE*, *EET*, *EEC*, and *ITFL*, contradicting the findings of Dorner (2022). Thus, the aspiration to integrate into the L2 language community (*IntO*) plays a role in shaping the desire to learn the L2 (*DLE*), the perception of the English class (*EET*), the intrinsic desire to learn the target language (*ITFL*), and the learning scenario (*EEC*).

The *SEM* analysis suggests that the combined influence of *IntO* and *InsO*, along with *DLE*, *ITFL*, *EET*, and *EEC*, forms the driving force that strengthens *MI* and *ATLL*. These factors are considered predictors of academic success in English language learning (Cocca

& Cocca, 2019) and are crucial for developing communicative competence in synchronous interactions (Mulyono & Saskia, 2021; Wang et al., 2022). The use of digital technologies enables the remote acquisition of English language skills in a creative and innovative manner, within a flexible setting that fosters participant interaction (Marshall & Kostka, 2020; Sulha et al., 2021), and there is the possibility of stimulating motivation through communicative practices that occur in this virtual setting (Lee, 2019). Furthermore, educators can implement digital video conferencing platforms for the enhancement of L2 language proficiency (Chang et al., 2022; Zheng et al., 2018) and can offer real-time corrective feedback to students.

The present structural equation model also explains the way in which the students within this sample manifest their inclination to acquire a new language through synchronous interactions. Motivation suggests that students possess a specific aim that drives them to acquire a knowledge of the L2. Consequently, they will exhibit a heightened inclination to engage and excel in the activities and exercises necessary for attaining communicative proficiency in English. In this sense, motivation is a construct that causes learning behavior, but it is susceptible to other factors such as teacher pedagogy (Meng, 2021), family influences (Jiao et al., 2022), beliefs about learning (Wang & Zhan, 2020), self-regulation strategies for L2 learning through digital technologies (Kohnke et al., 2021), and the level of assessment anxiety and fear of negative assessment (Gómez et al., 2023; Wang & Zhan, 2020).

This *SEM* offers empirical data that enables a comprehensive understanding of the behavior of the motivation construct in Colombian students learning English through synchronous encounters in Colombia, as operationalized by Cocca et al. (2017). Another benefit provided by this hypothetical SEM is its potential to serve as a valuable tool for educators, aiding their comprehension of the intricate dynamics between motivational factors. With this understanding, teachers can design and deliver synchronous remote classes that incorporate meaningful learning experiences and facilitate L2 language skill development.

6. Conclusion

The aim of the current study was to investigate the factors related to motivation and attitude towards learning English using structural equation modeling. The presented research results lead to the conclusion that the intensity of motivation and attitude in L2 learning are influenced by the integrative and instrumental orientations, desire to learn the L2, interest in the L2, valuing the course and the teacher. These factors, which are part of

motivation, are based on the instrument created by Cocca et al. (2017). Motivation is an essential factor in L2 learning (Kazantseva et al., 2016; Lee & Drajadi, 2019; Meng, 2021; Teng et al., 2021; Wu, 2022), because it encourages willingness to communicate in the English class (Saeedakhtar et al., 2018; Lee & Drajadi, 2019), sustains the attention and effort that this work demands (Zimmerman, 2011), and directly influences L2 performance (Cocca & Cocca, 2019; Dorner, 2022; Wang et al., 2022), regardless of the motivational orientation an individual possesses.

Motivation serves as a driving force that stimulates determination and interest in L2 learning. According to Gardner (2010), students in a highly motivated state improve their performance compared to those lacking motivation. Consequently, learners who exhibit poor motivation will possess a diminished inclination to acquire knowledge, resulting in a negative mental and emotional state, impeding their efforts to achieve a favorable outcome in acquiring the target language. Given the absence of any existing studies in the literature that examined the intrinsic aspects of motivation in English language learning using the chosen instrument in the present study, this current research introduces new empirical evidence on the motivation construct. The study focuses on a group of students learning English through synchronous encounters at a public university in Colombia.

This study yields certain pedagogical implications. Firstly, it is crucial for educators to create varied opportunities for the utilization of the L2 during every synchronous interaction, fostering the growth of language proficiency within a supportive and motivating environment that offers confidence, guidance and corrective feedback. The utilization of *ICT's* enables the facilitation of participant interaction (Lee, 2019; Mulyono & Saskia, 2021) and enables the accomplishment of learning objectives in a versatile and dynamic manner (Kohnke et al., 2021). In addition, teachers have the option to utilize digital technologies to include the participation of native English speakers in synchronous encounters. This can be accomplished through interaction with them via social networks and online applications. Nevertheless, it is imperative to consider the students' level of proficiency in the foreign language.

There are certain limitations inherent to this research. Initially, because of the data collection occurring at the conclusion of the academic period, this information cannot capture the motivational shifts experienced by students during the progression of the courses via synchronous encounters. Furthermore, the study solely focused on data obtained through a self-administered instrument featuring closed-ended statements. In this context, interviews that facilitate the exploration of students' perspectives, as well as

discussion groups, can yield valuable insights for comprehending the phenomenon under investigation. A potential area for future research could involve examining the impact of English-speaking teachers and foreigners on attitudes and motivation in English language learning.

Moreover, this would provide an opportunity to compare the motivational construct between individuals who have learned the L2 alongside native speakers and those who have not. Given that motivation is influenced by various internal and external factors, we suggest conducting a longitudinal study that examines the relationships between variables impacting communicative competence achievement. These variables include willingness to communicate, self-efficacy, personality traits (introversion and extraversion), anxiety levels, and beliefs regarding English language learning.

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