

The predictive effects of learner autonomy and academic engagement on willingness to communicate, foreign language learning self-esteem, and L2 grit in an EFL context

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ABSTRACT

Psychological factors, such as the fear of misunderstandings, making grammatical mistakes, and academic demotivation contribute to students' anxiety when speaking English in language classes. Some students may struggle to contribute actively to tasks and activities in English because they do not perceive themselves to be autonomous agents, feel engaged with the specific task, or are more generally academically demotivated. It is a critical goal of all English language teachers to assist these students in developing academic self-confidence and autonomy and in honing their spoken English. Drawing upon a quantitative method, the current study delved into a university setting to investigate the impact of autonomy and academic engagement on willingness to communicate, foreign language learning self-esteem, and L2 grit in English as a Foreign Language (EFL). Three hundred eighty-seven EFL students completed a survey. The results of Structural Equation Modeling (SEM), along with the Confirmatory Factor Analysis (CFA) as part of the measurement model validation, demonstrated that enhancing the EFL students' autonomy and academic engagement could significantly foster their willingness to communicate in English, as well as their self-esteem, and L2 grit. Overall, the results highlighted how the two pillars of self-determination theory, autonomy and academic engagement, contribute to positive psychology outcomes in the EFL domain. Relevant pedagogical consequences of this investigation are discussed based on the findings of the study.

1. Introduction

The journey to attain fluency in language learning involves cognitive, psychological, demographic, and emotional factors. The emotional component of language acquisition encompasses a range of factors, including sentiment, motivation, self-esteem, self-efficacy, and attitudes toward the target language. These emotional and psychological characteristics may have either an advantageous or detrimental effect on the language acquisition process of learners. To succeed in their educational pursuits, students must possess the ability to develop and use their skills in daily situations, as well as demonstrate perseverance, passion, willingness to engage, and adaptability to their ongoing interaction within a social environment. Learners who have a strong feeling of self-assurance

and determination in their position as community members are more inclined to engage in activities that promote a sense of connection, hence facilitating the growth of their ability to learn independently (Han, 2021).

Addressing the psychological aspects of language learning can have a profound impact on learners' capacity to acquire a new language (Dörnyei, 2005) and calls for attention on learner variables in language learning processes and specific context barriers and opportunities. Of these learner variables, learner autonomy (LA), which refers to "the ability to take charge of one's own learning" (Holec, 1981, p. 3), is noted as a crucial factor for success in an educational context. While Holec's construct highlights qualities of successful learners, such as being responsible and self-regulated when planning to learn, Little (1991, p. 4)

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explicitly related academic autonomy with psychology and sums up the construct of autonomy defining it as “the development and exercise of a capacity for detachment, critical reflection, decision making and independent action”.

In language learning, student engagement is recognized as one of the prominent relevant psychological variables for success. It has been described in existing studies as ‘student involvement’, ‘academic integration’, and ‘academic engagement’ (Bowden et al., p. 1209). Academic engagement (AE), as the term used in this paper, is based on theoretical frameworks such as cognitive-interactionist methods and sociocultural theory, which claim that language acquisition manifests itself when learners actively and purposefully use the target language (Hiver et al., 2021). Also, it is grounded in self-determination theory which supports the idea of fulfilling the psychological needs of students (autonomy, motivation, self-esteem, et cetera) in order to help students better engage in learning. Engagement (AE in the current study) refers to “how actively involved a student is in a learning task and the extent to which that physical and mental activity is goal-directed and purpose-driven.” (Hiver et al., 2021, p. 203) AE encompasses both internal and external factors which contribute to the students’ and teachers’ potential to function well together in class. It marks an attribute that emphasizes learners’ emotional and psychological aspects, namely their eagerness and attention when engaged in learning experiences (Gregory & Kaufeldt, 2015). This definition is comprised of four dimensions of engagement: behavioral, cognitive, social, and emotional. It presents the construct of AE in association with active participation, cognitive processing, and learner-affective attributes in normal social interactions. Since AE has a multidimensional nature and brings in a several inter-related operations, it can impact success in meeting learning outcomes at both a personal and institutional level (Bowden et al., 2021; Fredricks et al., 2004; Hiver et al., 2021).

Other essential factors for continuous language learning are the inclination to engage in opportunistic conversation, also known as willingness to communicate (WtC) (MacIntyre et al., 1998), and the combination of perseverance and enthusiasm toward meeting long-term objectives, referred to as grit (Duckworth et al., 2007). WtC refers to “a readiness to enter into discourse at a particular time with a specific person or persons, using L2” (MacIntyre et al., 1998, p. 547). Contemporary language education prioritizes interaction which leads academics and language educators to focus on examining WtC (Peng & Woodrow, 2010; Zarrinabadi, 2014) as a crucial learner variable for success in improving language skills especially the L2 speaking skill and in fostering motivation for oral interaction with peers and teachers in language classrooms (Riasati & Xian-han Huang, 2018).

Self-esteem (SE) is an extensively researched psychological concept that significantly impacts success or failure in an educational setting. Self-esteem is the perception of one’s own value (Bandura, 2000) and is affected by variables associated with an individual’s perceived achievements and disappointments. In the current paper, self-esteem is associated with foreign language learning, therefore, is mentioned as foreign language learning self-esteem (FLLSE). High FLLSE is linked to one’s general mental well-being, individual contentment, and “health adjustment and adaptation” in social settings (Orth & Robins, 2022, p. 5). On the other hand, having poor FLLSE can contribute to the development of anxiety, occurrences of pessimism, and the denial of any supportive feedback; therefore, presence of high SE is considered as an affecting variable on overall L2 achievement, L2 skills development, and overall AE within the language learning context (Habrat, 2018; Orth & Robins, 2022; Zhao et al., 2021).

The L2 grit (L2G) of learners is characterized by two key features: persistent effort and a solid commitment to achieving long-term objectives (Duckworth, 2016). It is defined as a unitary, trait-like, noncognitive construct composed of these two factors, expressed in stepped degrees from low to high (Oxford & Khajavy, 2021). Prior research has shown that L2G is a reliable indicator of many language acquisition results, such as academic performance and demonstrated skill level.

Students with greater L2G are more inclined to continue their language learning, especially in the face of challenges (Oxford & Khajavy, 2021).

This current study aims to explore the complex relationship between the cognitive, psychological, and emotional aspects of language learning, specifically focusing on how autonomy and AE can affect students’ SE, WtC, and L2G in EFL learning. Existing literature acknowledges that effective language learning is not only determined by cognitive ability but also by the emotional and psychological well-being of the learner. The results of this research contribute to the existing research of learner variables by focusing on the interrelationships of those variables in students who have been learning English in an EFL context. With a common aim to improve learning outcomes, findings indicate that English language instructors may be well served by implementing strategies that facilitate and promote communication while eliminating the ones that may degrade students’ self-worth and WtC.

2. Literature review

Cognitive and affective factors in language learning have been recognized in the EFL domain when considering the psychological well-being of learners and evaluating the efficiency of learning performance (Li et al., 2023; Wang et al., 2021). The interplay between learners’ personal variables and learning outcomes have been researched in relation to L2 language learning (Ebn-Abbasi et al., 2024; Jiang & Peng, 2023; Namaziandost et al., 2023; Özer & Yükselir, 2023; Teimouri et al., 2020; Paradowski & Jelińska, 2023). The common findings of these studies have established that certain variables are essential in evaluating language learning processes not only from the cognitive perspective but also from the affective perspective; and that doing so could provide a more holistic point of view on language learning (Habrat, 2018).

2.1. Learner Autonomy (LA)

LA as a manifestation of self-directed learning in the classroom context has been regarded in different ways. In his comprehensive research on autonomy, Benson (2004) tried to conceptualize the construct with the perspective that autonomy manifests itself in different spheres of life while also discussing the different levels of autonomy. Two key perspectives on autonomy related to language education include the narrow and broad perspectives (Kumaravadivelu, 2003). The narrow perspective considers autonomy as an aspect of learning to learn, acknowledging the learners’ awareness of personal agency and control over their learning. Whereas the broad perspective claims that autonomy is about learning to liberate the subject at hand from the contextual application (Kumaravadivelu, 2003). In this broad view, autonomous language learners transform what is learned in one setting for wider application in new contexts. Little (2022) added onto the broad perspective by describing specific actions characteristic of autonomous language learners. She considers autonomy as “a part of learning dynamics in which learners plan, implement, monitor and evaluate their own language learning” (Little, 2022, p. 64). Teng (2019) further justified the “overwhelming consensus” of researchers on the gains in learning a language which can be attributed to autonomy while also presenting a criticism of the construct, such as limited understanding of autonomy and its prerequisite external conditions (p. 14). The positive outcomes of exercising autonomy in language classes have been noted through facilitating learning practice in online spaces (Han & Reinhardt, 2022; Kalyaniwala & Ciekanski, 2021), and the practice of autonomy supportive practices for students (Aoki, 1999; Isik & Balçıkanlı, 2020). However, Benson (2006) acknowledged challenges in the research on LA and mentions that there is a dire need to progress from a mostly theoretical concept to an empirically based examination of how autonomy and its impact might differ due to aspects such as intrinsic learner variables and the specific cultural context. In short, the construct of LA in language education has been examined from several viewpoints.

Despite its acknowledged role in fostering learning and adaptability, further empirical studies might be needed to bridge the gap between extant studies, theories, and practice in educational settings.

2.2. Academic Engagement (AE)

AE impacts the learning journey and the learner's psychological factors (Alonso-Tapia et al., 2022; Pekrun & Linnenbrink-Garcia, 2012). AE in education has been examined from various perspectives. The assessment perspective, an evaluation of the quality of language learning outcomes through academic competencies and achievement, has led researchers to investigate student engagement as a critical element in learning processes (Trolan, 2024). Extant research on engagement in language learning has explored the connections between implicit and explicit learning mechanisms and analyzed factors that attract learners' attention, such as target language characteristics, specific tasks, content quality, and extent of social contact (Hiver et al., 2024). The learning outcomes have been evaluated in correlation with the degree of engagement and participation in educational activities, and an awareness of learning processes. A positive relationship has been found between a high degree of engagement and positive learning outcomes (Xu et al., 2023). Mengjie et al. (2023) noted a positive relationship between the sub dimensions of AE and student language achievement, they particularly cited emotional engagement as the most impactful dimension, followed by behavioral and cognitive sub dimensions. They suggested that teachers comprehend the correlation between students' AE and their achievement in English and to take the initiative when they observe a lack of interest. They also stated that the importance of emotional and cognitive engagement may not always be readily apparent. Therefore, elucidating its impact on academic success is essential to foster an active and positive language learning environment. Kahu and Nelson (2018) mentioned that it is essential to research how psychological factors interact with and impact AE and success in learning to better understand and foster learning. They emphasized that AE is rarely determined only by student characteristics or institutional variables but rather by the dynamic interplay between the two. For example, a task might be more engaging for students if the delivery style aligns with their interests or preferences. The interface of task and interest presents a point of impact where the instructor's approach to the interaction might indirectly impact engagement by mediating extant psychological mechanisms. This interplay between AE and extant psychological factors has garnered the attention of researchers. Several studies have been conducted to investigate the impact of factor interplay, such as the role of well-being and AE on language learning commitment (Huo, 2022), the relationship between self-esteem and AE as mediating factors (Zhao et al., 2021) and between autonomy, AE and academic performance (Jiang & Peng, 2023). These studies confirmed that the different psychological variables of AE impact language learning. However, the diverse psychological variables and their impact on AE and learning could also vary depending on the specific context and the learners themselves (Anyichie & Butler, 2023).

2.3. Willingness to Communicate (WtC)

Previous research has investigated to what extent second language learners were willing to communicate in L2, considering internal learner variables such as self-confidence, motivation, anxiety, perceived communicative competence, as well as external elements such as the communication partner's attitudes and intercultural sensitivity, language proficiency, and in versus out of the classroom context (Barrios & Napiórkowska, 2024; Cao & Philip, 2006; Henter, 2014; Lee & Hsieh, 2019; Öz et al., 2015; Yashima, 2002). These studies have shown that there is a positive association between WtC and several affective elements of learning a second language, including willingness to take risks, autodidactic competence, being proficient in the second language, and experiencing less anxiety and more motivation about learning the target

language. A high degree of WtC is linked to greater regularity and volume of communication through conversations leading to various positive communication results such as stronger social bonds, more effective collaboration, a sense of mutual support, improved conversational skills, and success in networking (Ahmet, 2019; Fathi et al., 2023). Fathi et al. (2023) have focused on the predicting potential of affective factors on WtC, and they found that the affective factors in question reliably predicted L2 WtC; therefore, they claimed that the positive relationship supported the importance of affective and contextual factors which facilitate language learners' willingness to interact. Peng and Woodrow (2010) hypothesized a model and researched how affective factors such as self-confidence, motivation, belief, and the classroom context could predict WtC. They found that, apart from motivation, these elements directly affected learners' WtC and highlighted that individual and contextual variables are of utmost importance in determining classroom communication dynamics. Likewise, in the search for what could affect WtC in L2 language classes, the interplay of learner variables, classroom atmosphere, and linguistic elements was found to be crucial (Cao, 2011). However, there could be fluctuations in the degree of WtC when affective, contextual, and specific linguistic variables are studied in relation to WtC (Pawlak et al., 2015). In summary, extant research has established a robust positive correlation between affective and contextual factors and learners' WtC in a second language, and highlighted the substantial impact of motivation, confidence, and classroom dynamics on communication behaviors and outcomes.

2.4. Foreign Language Learning Self-esteem (FLLSE)

FLLSE has been researched in relation to effective foreign language learning, and a volume of studies (Habrat, 2018). Habrat (2018) highlighted the positive impact of SE on general and skill-specific foreign language (FL) learning. Several studies mentioned in Habrat's work noted the varying directional relationship (from no relationship to substantial or strong relationship) between SE and psychological functioning. Based on the findings of the review, she indicated that how learners think of themselves is associated with foreign language learning success. There is a volume of research on the impact of FLLSE in association with other psychological factors (Zhang, 2022) and language attainment in the EFL context (Alrabai, 2017; Noorollahi, 2021). As for specific language skills, language learners with high FLLSE could be innately more social, successful, and be keener to communicate in a FL and thus correspondingly perform better in L2 speaking (Gürler, 2015), listening skills (Itzhakov & Weinstein, 2021), reading comprehension (Fahim & Rad, 2012) and reading (Bagheri & Faghieh, 2012). Explicitly stating that FLLSE is a crucial element for language instructors to foster is important, as its absence could seriously hinder the language learning processes. Arnold (2007) mentioned that language learners must adopt a realistic and healthy sense of self-worth, which drives them to be and feel competent in using the target language for communication in a "self-happy environment" (p. 19). It can be concluded that a multifaceted connection between FLLSE and psychological functioning, indicates that a strong feeling of self-efficacy might improve language learners' social interactions and communication skills. This can lead us consider FLLSE's crucial role in promoting successful language learning and overall achievement within a supportive educational context.

2.5. L2 Grit (L2G)

The concept of grit describes functioning vigorously in the face of adversity, sustaining effort and perseverance despite disappointment and challenges (Duckworth, 2016). L2G and its impact on language learning and educational achievement is significant and vital for student growth (Cheng, 2021). Understanding L2G might aid language educators in formulating effective teaching strategies to help language learners maintain their persistence and commitment to learning. The literature on learner grit reflects the current focus on the interdependent

connections between students' grit and related educational factors. According to Dale et al. (2018), Wu et al. (2022) and Zhao and Wang (2023), students with high levels of L2G tend to adopt a more favorable perspective on language learning and have more motivation and express a high level of WtC in class. Strong determination and enthusiasm can help individuals overcome challenges and move past unpleasant situations (Namaziandost et al., 2022). Cheng (2021) determined that the presence of language-specific perseverance and an eye to future benefits stimulates the inclination of language learners to engage in communication. In addition, Liu (2022) confirmed that EFL students' academic desires and development mindsets mediate their grit. Fathi and Hejazi (2024) stated that establishing a conducive atmosphere that promotes the growth of L2G among language learners can empower them to build emotional and cognitive resilience. Teimouri et al. (2020) revealed a strong correlation between L2G and students' motivation and success in language learning. To conclude it can be said that the role of L2G must be taken into account along with other key individual variables related to L2 development to foster a deeper understanding of the motivational dynamics in language classrooms. Contrary to the aforementioned studies, some research studies have shown a little or no significant impact of grit on EFL (Alamer, 2021) and on WtC in English in an EFL setting (Lan et al., 2021). The fluctuation in the impact of L2G is deemed evident and more empirical studies from different EFL contexts are necessary to generalize the impact of L2G on EFL success and other learner variables.

Even though LA, AE, WtC, FLLSE, and L2G play roles in positively supporting students' psychological state and academic performance, a limited number of studies have examined the complex and interconnected relationships between these specific factors. This gap in the literature is particularly evident and limits the understanding of dynamic and interconnected nature of the affective factors (Derakhshan & Fathi, 2024; Fathi et al., 2024). Moreover, Wang et al. (2021) called for empirical research that explores the positive psychology issues within specific cultural contexts to extend the language learning theories and to gather data across different contexts. The present research aims to close the gap by investigating the possible interconnections between the noted psychological factors, portraying the impact of learner variables from a specific EFL context. The potential impact of this research on language learning is significant. Researchers in this work sought to specifically explore potential links in an EFL context by proposing a model, testing it, and discussing the associated findings for language learning. The following research questions (RQs) are put out with these viewpoints in mind:

RQ 1. Does learner autonomy influence students' willingness to communicate, foreign language learning self-esteem, and L2 grit in an EFL setting?

RQ 2. Does academic engagement impact students' willingness to communicate, foreign language learning self-esteem, and L2 grit in an EFL setting?

3. Methodology

3.1. Participants

Three hundred eighty-seven students participated in the survey, with males comprising 42 % of the group and females accounting for the remaining 58 %. The participants of the study were English majors at the Department of Foreign Languages in Mashhad, Iran. Having been registered in the third year in the program, they were taking departmental compulsory language courses such as Advanced English and Grammar in Context. Their ages ranged from 20 to 24 ($M = 21.9$, $SD = 8.14$). The survey was administered in English since the participants have upper-intermediate language proficiency (B2) according to the Oxford Quick Placement Test (Allan, 2004). The researchers emphasized that participation in the study was entirely voluntary, and that subjects could withdraw at any time without penalty. The researchers assured

participants that their opinions would be treated as confidential and that they would get regular updates on the study's results. Individuals who expressed interest in participating in the research filled out an electronic consent form and submitted it to the study organizers. It is worth noting that the study was monitored and confirmed by the Ethics Committee in Research at Ferdowsi University (ID: 124/MH15).

3.2. Research instruments

The study used the Learner Autonomy Questionnaire (LAQ) developed by Zhang and Li (2004) to measure the level of autonomy the participants showed in their learning of English as a foreign language. This questionnaire has a response format based on a 5-point Likert scale and is comprised of eleven questions. The researchers assessed the instrument's internal consistency and determined that the results were appropriate ($\alpha = 0.789$).

3.2.1. Academic Engagement scale

The Academic Engagement (AE) scale developed and verified by Freda et al. (2023) was used to assess and measure the participants' level of AE across multiple aspects to obtain a clear understanding of the measurement of their AE. Since the participants were EFL students at a higher education institute, the SAES scale was found to be relevant and appropriate for this study. The instrument consists of 29 items with six aspects rated upon a scale based on five-point Likert scale: higher education value and sense of belonging, perception of the capability to persist in the university of choice, value of the university course, engagement with university professors, engagement with university peers, and relationships between the university and students' personal relationships developed on that network subsequently referred to here as university and relational network. The present research results of the AE scale yielded a Cronbach's alpha coefficient of 0.873, indicating a satisfactory level of reliability for the overall scale. $\alpha = 0.812$ for higher education value and sense of belonging, $\alpha = 0.782$ for perception of the capability to persist in the university of choice, $\alpha = 0.894$ for value of the university course, $\alpha = 0.870$ for engagement with university professors, $\alpha = 0.903$ for engagement with university peers, and relationships between university and relational network.

3.2.2. The Foreign Language Learning Self-esteem scale

The Foreign Language Learning Self-esteem (FLLSE) scale created by Rubio (2007) was employed to investigate the participants' self-esteem in a EFL context. It is a Likert-type scale with five possible responses to 25 questions that measure four dimensions which are relevant to the study's objectives: language proficiency, actual use of language in the classroom, classroom interactions, and attitude and behavior toward foreign language learning. In this research, the reliability of FLLSE scale was assessed, and the Cronbach alpha value yielded an acceptable result of $\alpha = 0.868$ for overall scale, $\alpha = 0.884$ for language proficiency, $\alpha = 0.829$ for actual use of language, $\alpha = 0.912$ for classroom interaction, and $\alpha = 0.834$ for attitude and behavior toward FLL.

3.2.3. The L2 Grit scale

The L2 Grit (L2G) scale developed by Teimouri et al. (2020) is a language-domain-specific scale that measures perseverance and passion for learning a particular language. These qualities are directly relevant to the current study. This scale consists of 12 questions rated on a scale based on five Likert points in two dimensions: perseverance of effort and consistency of interest. The reliability of this scale was assessed using Cronbach's alpha, yielding a satisfactory value: $\alpha = 0.841$ for the overall scale, $\alpha = 0.858$ for the dimension of perseverance of effort and $\alpha = 0.892$ for the dimension of consistency of interest.

3.2.4. The Willingness to Communicate questionnaire

The Willingness to Communicate (WtC) questionnaire designed and validated by MacIntyre et al. (2001) was also used in the study since it

appropriately assesses various aspects of WtC in English. It specifically evaluated four aspects of WtC in English: social support, language learning motivation, WtC outside the classroom, and WtC within the classroom, using a five-point Likert scale. The scale's reliability was evaluated and yielded $\alpha = 0.859$ for the overall questionnaire, $\alpha = 0.866$ for social support, $\alpha = 0.861$ for language learning motivation, $\alpha = 0.873$ for WtC outside the classroom, $\alpha = 0.881$ for WtC within the classroom.

It should be noted that the selection of the data collection tools was meticulously evaluated, considering their relevance, historic reliability and acknowledgement in the field, as well as congruence with the study's aims and research questions.

3.3. Data collection and analysis procedures

This study employed a web-based survey platform (Google Forms) to collect data over five months in 2023. The students were provided with a link during an extra session in the seventh week of the first semester wherein they were provided data collection tools and information on how to fill out the requisite forms. They were given approximately 45–50 min on the scales. Four students feeling were not feeling well on the day of data collection and opted for doing the forms at a later time. These students were provided with additional week to complete the forms as an accommodation. Participation in the study was voluntary, and the participants were informed that they could withdraw from the study without any consequences. The data was first checked for normality of the distribution using the Kolmogorov-Smirnov (K–S) test which confirmed that the data was normally distributed. The study employed SEM with the LISREL 8.80 framework to investigate the relation between the learner variables under investigation and the two research questions above. SEM is a robust multivariate procedure that supports the proposed structural theory with a confirmatory hypothesis-taking technique (Schreiber et al., 2006). CFA was also conducted to validate the measurement model and evaluate latent variables prior to evaluating the structural model (Hair et al., 1998).

4. Results

Initially, the collected data was subjected to the Kolmogorov-Smirnov test to detect any regularities in the repeated occurrences and to check normality of the data distributed.

Table 1 indicates that the p -values for all the instruments and their components were >0.05 . These results suggest that the data is distributed normally, which supports using parametric statistical methods for analyzing the data. The variables attitude toward class behavior and perseverance of effort in Table 1 have p -values that are close to 0.05.

Table 1
. The results of the K–S Test.

	Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)
Learner Autonomy	0.605	0.858
Higher Education Value and Sense of Belonging	0.889	0.408
Perception of the Capability	0.952	0.324
Value of University Course	0.754	0.620
Engagement with University Professors	1.193	0.116
Engagement with University Peers	0.877	0.425
Relationships between University and Relational Network	0.993	0.277
Academic Engagement	0.992	0.279
Language Capability	0.955	0.322
Real In-class Language Utilization	0.680	0.745
In-class Correlations	0.784	0.570
Attitude Toward Class Behavior	1.356	0.051
Foreign Language Learning Self-esteem	0.507	0.959
Perseverance of Effort	1.344	0.058
Consistency of Interest	1.144	0.146
L2 Grit	1.002	0.268
Willingness to Communicate	0.773	0.589

This indicates that these variables are borderline for reliability, but still within acceptable limits.

Descriptive statistics were used to present the central tendency, variability, and distribution of the dataset collected for this research. Table 2 provides the numbers of the participants, mean, standard deviation, and minimum and maximum values for each construct and subconstruct measured in the study using the data collection tools.

LA obtained a mean score of 35.91 and a standard deviation 10.66. The results indicated that in the second instrument, AE, the most prominent interest was related to the Value of University Course ($M = 24.24$, $SD = 6.03$). Among the various components of FLLSE, the component pertaining to Language Capability received the highest mean score ($M = 23.51$, $SD = 6.46$). Furthermore, upon analyzing L2G, it became apparent that Consistency of Interest ($M = 21.92$, $SD = 6.04$) arose as the most significant leading factor. Considering WtC, the mean score is 90.24 ($SD = 17.94$). As seen in the table, the level of LA was moderate, the perception of university value was typically good, and learners felt that they were moderately capable. Peer engagement surpassed instructor engagement. The students reported a high level of self-esteem, and their levels of L2G and WtC were particularly high.

Subsequently, the connections between the constructs involved in the study were examined using SEM and a causal analytic framework. The model's predictive accuracy in comparison with the raw data was evaluated. The trials were conducted using the statistical program LISREL 8.80. The chi-squared magnitude, Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), Goodness of Fit Index (GFI), and Normed Fit Index (NFI) were used as metrics to evaluate the model's predictive accuracy compared to the raw information.

The SEM analysis has demonstrated a satisfactory model fit. The chi-square (χ^2) values for Model 1 and Model 2 were 3043.07 with 1073 degrees of freedom and 6813.20 with 2372 degrees of freedom, respectively (see Table 3). Both models showed a good fit, as evidenced by the chi-square to degrees of freedom ratios (χ^2/df), which were 2.839 for Model 1 and 2.872 for Model 2, both sufficiently below the threshold of 3. RMSEA values were also indicative of a good fit, with values of 0.069 for Model 1 and 0.070 for Model 2, which are below acceptable cut-off of 0.1. GFI, NFI, and CFI for Model 1 were 0.930, 0.951, and 0.947, respectively, all exceeding the value of 0.9, indicating a good model fit. Model 2 showed similar strength in fit with GFI, NFI, and CFI values of 0.941, 0.952, and 0.930, respectively. It can be said that there was an accurate match between the model and the data collected.

Visually presenting the relationship between latent variables, Fig. 1 shows the standardized path coefficients between latent variables in the first research model, illustrating the strength and direction of these relationships.

Fig. 1 also presents that the LA and AE are significant positive

Table 2

The results of descriptive statistics.

	N	Minimum	Maximum	Min-max possible range	Mean	Std. deviation
Learner Autonomy	387	11	55	0–60	35.91	10.66
Higher Education Value and Sense of Belonging	387	6	30	0–30	20.13	5.40
Perception of the Capability	387	4	20	0–20	13.23	4.046
Value of University Course	387	10	35	0–40	24.24	6.03
Engagement with University Professors	387	4	20	0–20	14.07	3.90
Engagement with University Peers	387	6	25		16.84	4.60
Relationships between University and Relational Network	387	3	15	0–15	9.54	3.40
Academic Engagement	387	37	145	0–150	98.08	20.96
Language Capability	387	7	35	0–35	23.51	6.46
Real In-class Language Utilization	387	6	30	0–30	20.45	5.38
In-class Correlations	387	11	30	0–30	21.50	3.92
Attitude Toward Class Behavior	387	10	30	0–30	22.27	4.31
Foreign Language Learning Self-esteem	387	47	118	0–120	87.75	13.98
Perseverance of Effort	387	9	30	0–30	21.81	5.68
Consistency of Interest	387	6	30	0–30	21.92	6.04
L2 Grit	387	15	60	0–60	43.73	11.33
Willingness to Communicate	387	41	121	0–125	90.24	17.94

Table 3

Model fit indices.

Fitting index	χ^2	df	χ^2/df	RMSEA	GFI	NFI	CFI
Cut-off value			<3	<0.1	>0.9	>0.9	>0.9
Model 1	3043.07	1073	2.839	0.069	0.930	0.951	0.947
Model 2	6813.20	2372	2.872	0.070	0.941	0.952	0.930

psychology constructs impacting FLLSE, WtC and L2G. The strong path coefficients indicate robust relationships, suggesting that improvements in autonomy and engagement can significantly enhance these outcomes. Additionally, it was necessary to determine the significance of the latent variables under investigation in the first research model. Fig. 2 below illustrates t-statistics for each path coefficient, indicating the significance of the relationships.

The t-test results show the statistical significance of the relationships illustrated in Fig. 2. All the t values for significance are above 1.96 at the 0.05 level, which confirms that relationships are not random. This further confirms the first research model's validity and highlight LA and AE as key variables impacting learning outcomes. Path analysis within SEM was performed to measure the direct and indirect impact of one variable on another under investigation. The path coefficients, t-statistics, and test results for the relationships between latent variables in the first research model is shown in Table 4.

The interrelation among the variables is illustrated visually in Figs. 1 and 2, and Table 4. The path coefficients indicate statistically significant positive relationships between the latent variables. Standardized estimates and t-values for examining the impact of LA, AE, WtC, FLLSE, and L2G are presented in Table 4. LA has a significantly positive influence on FLLSE ($\beta = 0.91$, $t = 44.76$), L2G ($\beta = 0.86$, $t = 36.12$), and WtC ($\beta = 0.88$, $t = 37.89$). Moreover, FLLSE ($\beta = 0.49$, $t = 10.31$), L2G ($\beta = 0.61$, $t = 18.77$), and WtC ($\beta = 0.76$, $t = 30.45$) are all significantly impacted by AE.

Fig. 3 below shows the standardized path coefficients between latent variables in the second research model, presenting the strength and direction of these relationships.

The Fig. 3 demonstrates that LA as a construct and all the sub-components of AE (Learner Autonomy, Higher Education Value and Sense of Belonging, Perception of Capability in the University Choice, Value of University Course, Engagement with University Professors and Peers, and Relationships between University and Relational Network) have a significant and positive impact on the key outcomes of FLLSE, WtC and L2G. The path coefficients confirm the strength of these relationships. In Fig. 4 below, t-test results of the second research model were presented to present the significance of the relationship between the latent variables.

The statistical significance of the relationships was proven. All the t values for significance are above 1.96 at the 0.05 level, which confirms that the relationships are not random.

This further confirms the second research model's validity and highlight the constructs under investigation impact learning outcomes. Path analysis within SEM was performed to measure the direct and indirect impact of one variable on another under investigation. The path coefficients, T-statistics, and test results for the relationships between latent variables in the first research model was shown in Table 5.

In addition to Table 5, Fig. 3 and Fig. 4 both illustrate the relationships between the components of the selected latent variables in Model 2. The significance of each relationship is determined by the t-statistic, with values >1.96 indicating statistical significance at the 0.05 level. LA ($\beta = 0.91$, $t = 45.57$), Higher Education Value and Sense of Belonging ($\beta = 0.53$, $t = 12.70$), Perception of the Capability ($\beta = 0.55$, $t = 13.61$), Value of University Course ($\beta = 0.51$, $t = 11.83$), Engagement with University Professors ($\beta = 0.48$, $t = 9.52$), Engagement with University Peers ($\beta = 0.46$, $t = 8.85$), and Relationships between University and Relational Network ($\beta = 0.42$, $t = 6.43$) were found to be associated with FLLSE. Additionally, valid are the correlations between L2G and the following variables: LA ($\beta = 0.86$, $t = 35.72$), Higher Education Value & Sense of Belonging ($\beta = 0.64$, $t = 21.32$), Perception of the Capability ($\beta = 0.66$, $t = 22.75$), Value of University Course ($\beta = 0.62$, $t = 20.45$), Engagement with University Professors ($\beta = 0.58$, $t = 14.82$), Engagement with University Peers ($\beta = 0.60$, $t = 17.74$), and Relationships between University and Relational Network ($\beta = 0.57$, $t = 14.09$). It was discovered that WtC was associated with the following variables: LA ($\beta = 0.88$, $t = 37.64$), Higher Education Value and Sense of Belonging ($\beta = 0.72$, $t = 26.93$), Perception of capability ($\beta = 0.83$, $t = 33.49$), Value of University Courses ($\beta = 0.80$, $t = 31.86$), Engagement with University Professors ($\beta = 0.78$, $t = 29.55$), Engagement with University Peers ($\beta = 0.75$, $t = 29.13$), and Relationships between University and Relational network ($\beta = 0.69$, $t = 24.48$).

5. Discussion

The first RQ1 investigated whether LA influences students' WtC, FLLSE, L2G in the Iranian EFL context. The findings provided evidence

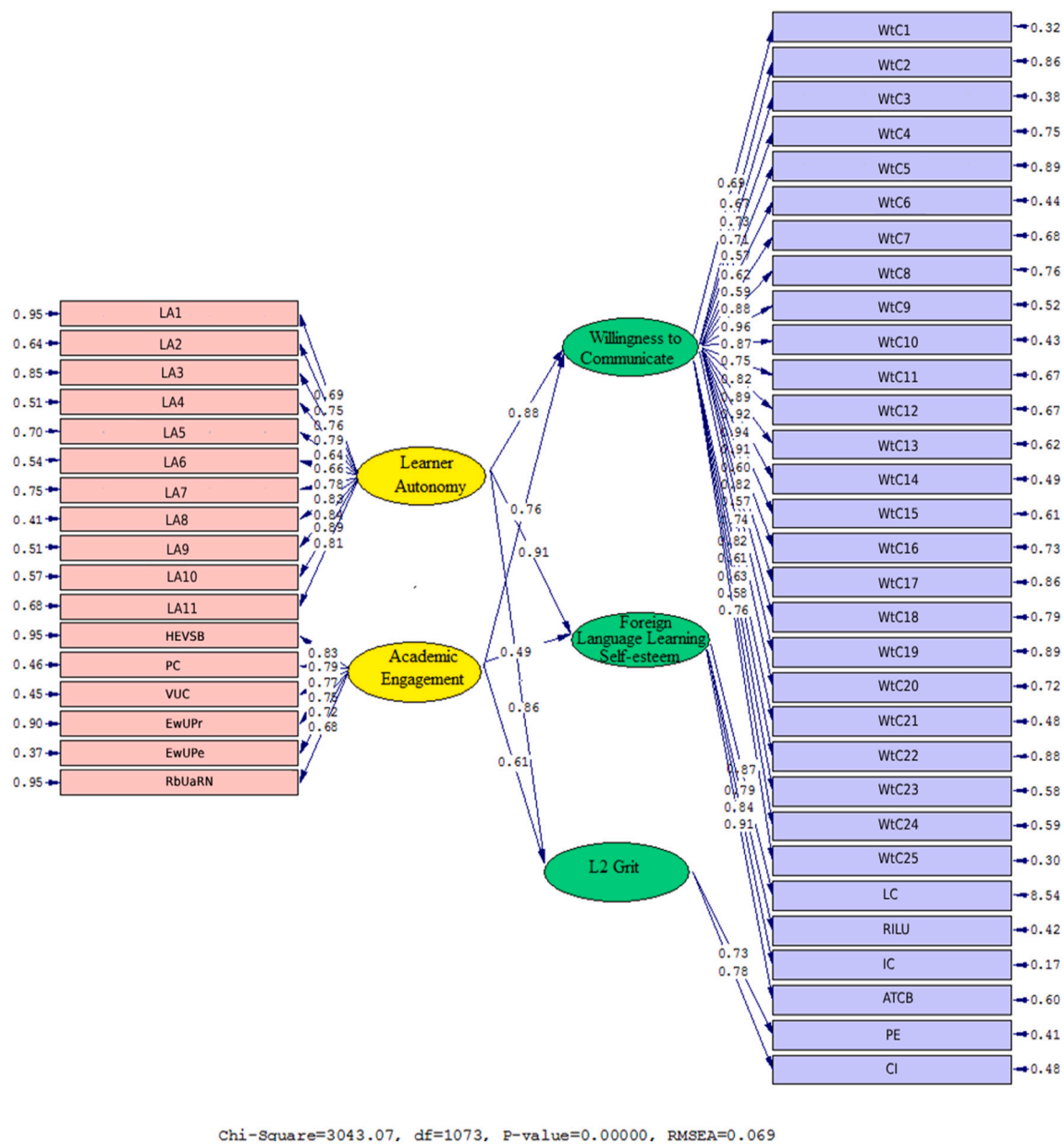


Fig. 1. Factor coefficients and path coefficient of the first research model

Note. LA (Learner autonomy); HEVSB (Higher Education Value and Sense of Belonging); PC (Perception of the Capability); VUC (Value of University Course); EwUPr (Engagement with University Professors); EwUPe (Engagement with University Peers); RBUaRN (Relationships between University and Relational Network); WtC (Willingness to Communicate); LC (Language Capability); RILU (Real In-class Language Utilization); IC (In-class Correlations); ATCB (Attitude Toward Class Behavior); PE (Perseverance of Effort); CI (Consistency of Interest).

of a significant relationship between LA and all three variables. Model 1 demonstrated that greater LA contributes significantly to students' willingness to engage in communication within the target language. The study's results indicated that LA equips learners with the agency to take charge of their learning processes, which enhances their communicative willingness. This supports *Dörnyei's* (2005) assertion that psychological constructs in language learning are interconnected and should not be viewed in isolation. By cultivating autonomy, students develop the confidence to communicate, stemming from their increased control over learning situations. This aligns with research by *Little* (1991), who emphasized that learners with greater autonomy experience a heightened sense of competence, which directly influences their willingness to take risks and participate in communicative tasks. Moreover, this finding resonates with the self-determination theory (*Deci & Ryan, 2008*), which posits that autonomy is one of the three basic

psychological needs (alongside competence and relatedness) that drive intrinsic motivation. As a result, students become more motivated to communicate in the target language, as they feel more in control of their learning outcomes. *Derakhshan and Fathi's* (2024) findings support this perspective, indicating that autonomous learners are more proactive in seeking communicative opportunities, which, in turn, positively impacts their L2 proficiency.

The findings also highlighted a significant relationship between LA and FLLSE, confirming that autonomy plays a vital role in enhancing students' confidence in their language abilities. The findings of the study evidenced that LA fosters self-regulation, allowing learners to set personal goals, reflect on their progress, and take corrective action when necessary. This sense of ownership over their learning leads to increased self-esteem, as learners see themselves as active agents in their language development. *Wang et al. (2021)* underscored the importance of

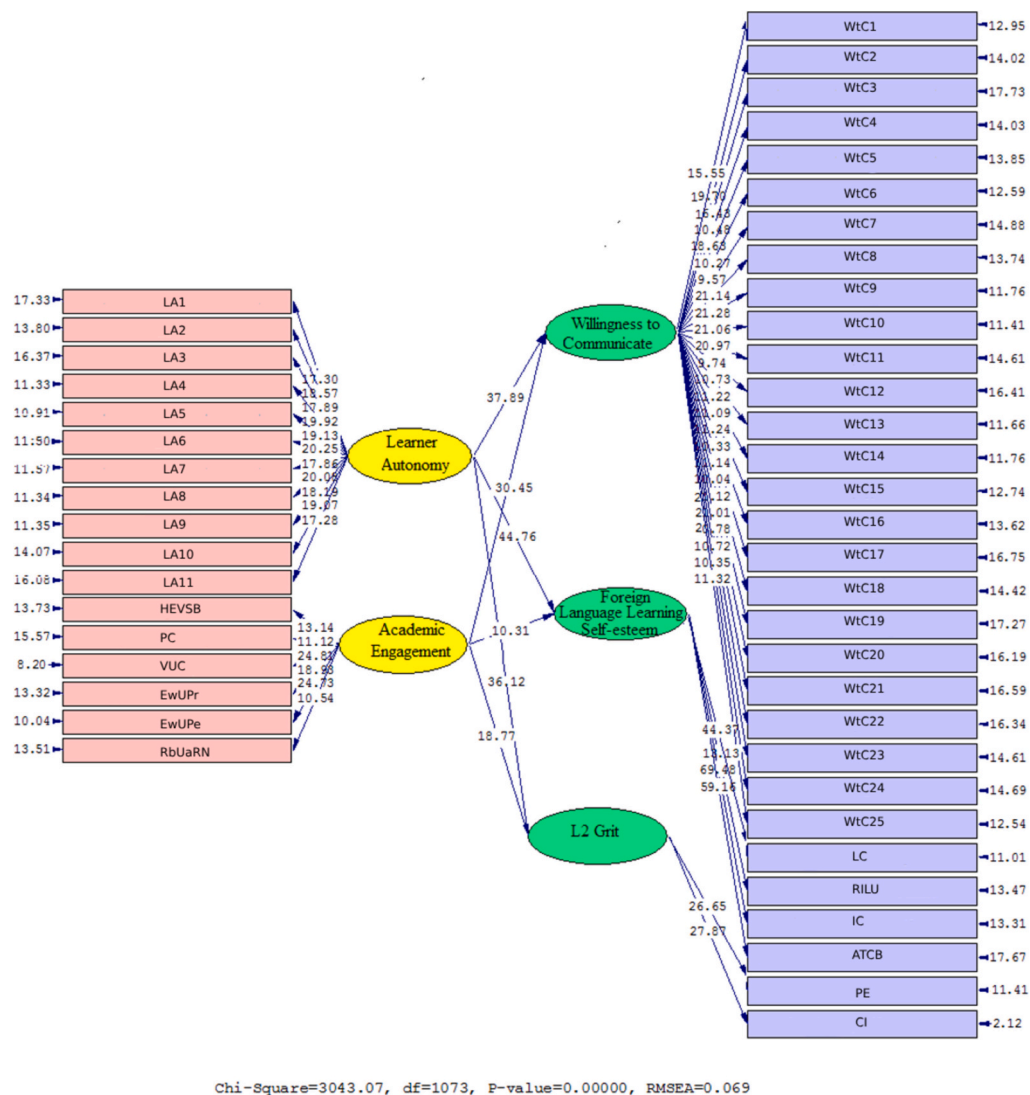


Fig. 2. t-test results of the first research model.

Table 4
Examining the relationships between latent variables (Model 1).

Paths		Path coefficient	T statistics	Test results
Learner Autonomy	→ Foreign Language Learning Self-esteem	0.91	44.76	Supported
Learner Autonomy	→ L2 Grit	0.86	36.12	Supported
Learner Autonomy	→ Willingness to Communicate	0.88	37.89	Supported
Academic Engagement	→ Foreign Language Learning Self-esteem	0.49	10.31	Supported
Academic Engagement	→ L2 Grit	0.61	18.77	Supported
Academic Engagement	→ Willingness to Communicate	0.76	30.45	Supported

autonomy in developing resilience, which is crucial for maintaining self-esteem, especially when learners face setbacks. Furthermore, the role of autonomy in enhancing self-esteem can be explained by the cognitive evaluation theory, a sub-theory of self-determination theory. This theory suggests that learners' self-esteem increases when they perceive

themselves as competent and in control of their actions (Deci & Ryan, 2008). Autonomous learners are more likely to engage in self-directed learning behaviors, which fosters a positive self-concept. This sense of competence leads to higher levels of FLLSE, as learners feel empowered to navigate the complexities of language learning without relying excessively on external support. The current study's findings corroborate those of Ritonga et al. (2023), who found that autonomy and resilience significantly contribute to learners' self-regulation and motivation, both of which are closely tied to self-esteem.

The study's findings also revealed that the influence of LA on L2G is particularly noteworthy. The study's findings document that autonomy enhances L2G by encouraging learners to take responsibility for their learning trajectories. Autonomous learners are better equipped to set realistic goals, monitor their progress, and persist through challenges (Duckworth et al., 2007). This finding aligns with the work of Jeno et al. (2021), who found that autonomy is positively correlated with grit, as autonomous learners were more likely to display sustained effort over time. In addition, the relationship between autonomy and grit can be linked to the concept of "self-regulated learning" (Zimmerman, 2000). That is, autonomy fosters self-regulation by allowing learners to develop goal-setting and problem-solving skills, which are critical components of grit. The ability to self-regulate empowers learners to persist in the face of difficulties, which leads to higher levels of perseverance and passion

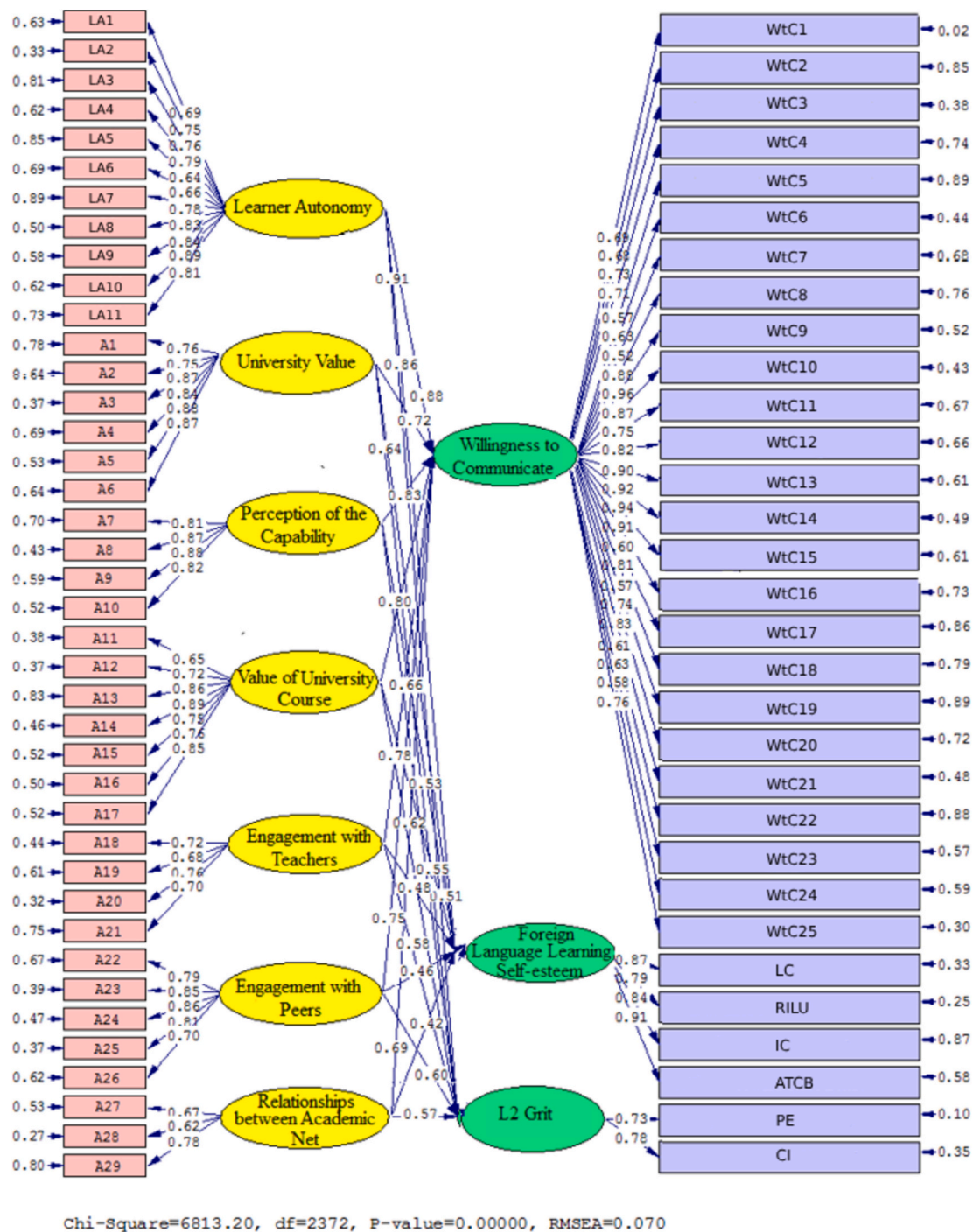


Fig. 3. Factor coefficients and path coefficient of the second research model.

for language learning. This is particularly important in EFL contexts, where learners often encounter challenges such as limited exposure to the target language or lack of immediate rewards for their efforts.

The second RQ2 examined whether AE impacts students' WtC, FLLSE, and L2G in the EFL context of Iran. The study found that AE plays a significant role in shaping these variables, with Model 2 confirming the positive and substantial influence of AE on students' communicative willingness, self-esteem, and perseverance in the language learning process. The results of the study demonstrated that AE significantly enhances students' WtC. Engagement in academic activities, particularly in interactive learning environments, fosters a sense of connection and belonging among students, which, in turn, encourages them to

participate more actively in communicative tasks. This finding aligns with the work of Zheng (2021), who argued that students' active participation in academic contexts increases their readiness to communicate by reducing anxiety and enhancing confidence in their language abilities. AE functions as a motivational driver that creates opportunities for learners to engage with their peers and instructors, thus fostering a more dynamic language learning experience. In this sense, engagement serves as a social mediator, providing learners with the necessary scaffolding to practice and refine their communication skills. This finding can also be linked to the concept of "engaged learning" (Finn & Zimmer, 2012), which emphasizes that learners who are more academically engaged are more likely to take initiative and engage in meaningful

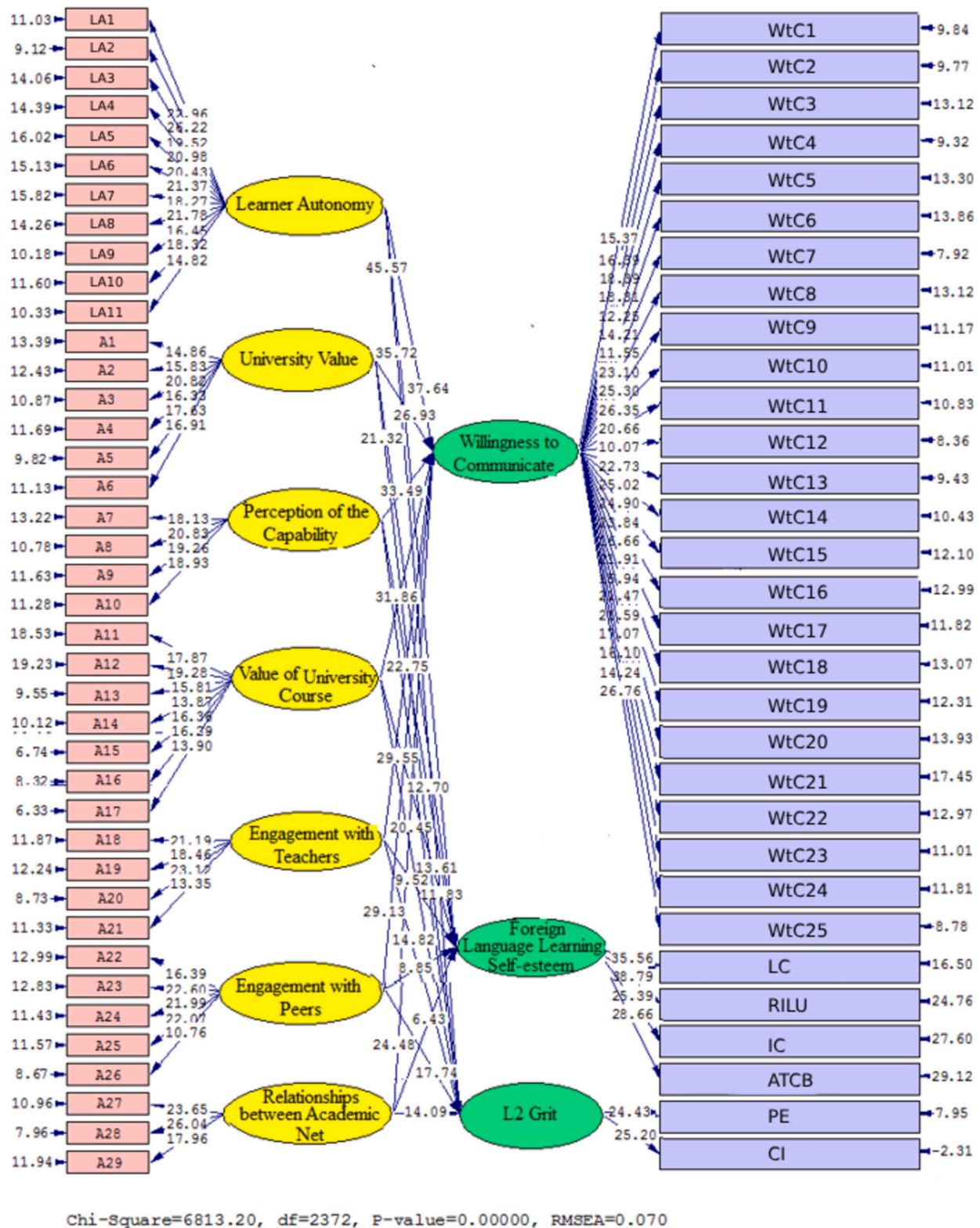


Fig. 4. t-test results of the second research model.

communication, particularly in foreign language learning environments where anxiety and uncertainty can impede WtC.

The study also revealed a strong relationship between AE and FLLSE. That is, the students who are more academically engaged tend to have higher self-esteem regarding their foreign language learning abilities. Fredricks et al. (2004) highlighted that AE involves behavioral,

emotional, and cognitive dimensions, all of which contribute to a learner's self-concept and sense of competence. In an EFL context, students who actively participate in academic activities are more likely to develop positive beliefs about their language abilities, which, in turn, boosts their self-esteem. This finding resonates with the self-determination theory (Deci & Ryan, 2008), which posits that

Table 5
Examining the relationships between latent variables (Model 2).

Paths		Path coefficient	T statistics	Test results
Learner Autonomy	→ Foreign Language Learning Self-esteem	0.91	45.57	Supported
Higher Education Value and Sense of Belonging	→ Foreign Language Learning Self-esteem	0.53	12.70	Supported
Perception of the Capability (to persist in the university choice)	→ Foreign Language Learning Self-esteem	0.55	13.61	Supported
Value of University Course	→ Foreign Language Learning Self-esteem	0.51	11.83	Supported
Engagement with University Professors	→ Foreign Language Learning Self-esteem	0.48	9.52	Supported
Engagement with University Peers	→ Foreign Language Learning Self-esteem	0.46	8.85	Supported
Relationships between University and Relational Network	→ Foreign Language Learning Self-esteem	0.42	6.43	Supported
Learner Autonomy	→ L2 Grit	0.86	35.72	Supported
Higher Education Value and Sense of Belonging	→ L2 Grit	0.64	21.32	Supported
Perception of the Capability	→ L2 Grit	0.66	22.75	Supported
Value of University Course	→ L2 Grit	0.62	20.45	Supported
Engagement with University Professors	→ L2 Grit	0.58	14.82	Supported
Engagement with University Peers	→ L2 Grit	0.60	17.74	Supported
Relationships between University and Relational Network	→ L2 Grit	0.57	14.09	Supported
Learner Autonomy	→ Willingness to Communicate	0.88	37.64	Supported
Higher Education Value	→ Willingness to Communicate	0.72	26.93	Supported
Perception of the Capability	→ Willingness to Communicate	0.83	33.49	Supported
Value of University Course	→ Willingness to Communicate	0.80	31.86	Supported
Engagement with University Professors	→ Willingness to Communicate	0.78	29.55	Supported
Engagement with University Peers	→ Willingness to Communicate	0.75	29.13	Supported
Relationships between University and Relational Network	→ Willingness to Communicate	0.69	24.48	Supported

individuals who experience high levels of engagement in meaningful activities tend to develop greater self-efficacy and self-worth. In the context of foreign language learning, students who are engaged in tasks that challenge and stimulate their cognitive abilities often experience a greater sense of accomplishment, thereby reinforcing their FLLSE. Mackinnon (2015) argued that students' self-esteem is directly influenced by the level of challenge and engagement they experience in the learning environment. When learners are actively involved in academic tasks that promote personal growth and development, they are more likely to view themselves as capable language learners.

The significant relationship between AE and L2G, as confirmed by Model 2, suggests that engaged learners are more likely to demonstrate perseverance and resilience in the language learning process. Grit, defined as the passion and persistence for long-term goals (Duckworth et al., 2007), is a critical factor in language acquisition, which often requires sustained effort over an extended period. The study's findings indicate that AE helps learners develop the resilience necessary to overcome challenges and maintain focus on their language learning objectives. The role of engagement in fostering grit can be explained by the theory of "grit development" (Credé et al., 2017), which posits that individuals who are engaged in meaningful and challenging activities are more likely to persevere in the face of difficulties. In the EFL context, engagement in interactive and cognitively demanding tasks provides learners with opportunities to develop problem-solving skills, which are essential for building grit. This finding is consistent with Fredricks (2015), who noted that AE not only promotes immediate academic success but also contributes to the long-term development of traits like grit, which are critical for sustained learning.

6. Conclusion

The findings of the present study provided an understanding of how learner variables impact each other, indicating that there are statistically robust and positive relationships between these learner variables (Lei et al., 2024; Lera et al., 2023). That is to say, LA and AE could significantly predict WtC, FLLSE, and L2G. On a local level, the findings highlight the importance of these characteristics in foreign language learning settings. Within the local context, promoting LA may require employing culturally sensitive strategies that adhere to the customs and aspirations of the students (Moharami, 2024). In countries where teacher-supported learning is common, such as in Iran's EFL context, progressively implementing autonomy-supportive techniques can assist students in adapting to and benefiting from the advantages of having more control over their own language learning.

Similarly, in order to improve AE at a local level, it may be necessary to address obstacles that students might encounter, such as the restricted availability of resources or support networks. By comprehending and resolving these specific obstacles in the local context, educators may more effectively customize their approaches to promote active participation and enthusiasm among EFL students. This focused strategy of resolving local barriers sets up the students to reap the beneficial effects of LA and AE on FLLSE, WtC, and L2G and foreign language growth within the specific educational setting.

The findings of this research may have significant consequences for EFL teachers, students, and instructional designers. Using authentic and supportive learning resources tailored to the student's proficiency levels, ages and needs, along with mindful student-teacher interactions (Han, 2021), could enhance their engagement and autonomy (Hart, 2002; Li & Xue, 2023). To guarantee the benefits imparted by positive self-esteem, it is vital that professors, universities, and educational organizations play an active part in constructing and maintaining an environment that is receptive to AE and LA. During in-service and pre-service classes, EFL teachers are expected to acquire the knowledge necessary to develop students' self-esteem and improve their own tolerance and compassion for student centered learning. Based on this study's findings, EFL instructors are strongly encouraged to restructure their educational

programs and establish evaluations with the requirements of the learners they teach in mind. In addition to directing and enhancing the establishment of self-help frameworks, promoting student engagement in their education may enhance instruction and evaluation quality across learning settings.

The main limitation of this study is that the researchers intended to carry out semi-structured interviews to investigate the interaction of the learners' variables. However, due to bureaucratic barriers, the required permissions for doing interviews were obtained only after the initial data analysis had been finished; therefore, it was not included in the study. Future study might be enhanced by utilizing a mixed-method approach to better comprehend the interconnectedness of the learner variables. Also, further research could be planned evaluating English language proficiency and performance in L2 skills with respect to the learner characteristics studied in this paper and the number of participants could be extended to include larger and more diverse groups from different institutions to confirm the external validity. Additionally, it was difficult to present the constructs comprehensively. Although 25 indicators in validated data collection tool were used to encompass the breadth and complexity of WtC, we did not incorporate the four sub-factors delineated in the theoretical framework. Likewise, the construct of L2G and FLLSE were operationalized with only two and four indicators respectively and the tools to assess the variables in the existing literature covered the limited numbers of indicators for each construct. Future research should include more comprehensive indicators with adequate representations of all subfactors.

CRedit authorship contribution statement

Ehsan Namaziandost: Writing – review & editing, Writing – original draft, Supervision, Investigation, Conceptualization. **Fidel Çakmak:** Writing – review & editing, Validation, Investigation. **Tahereh Heydarnejad:** Writing – original draft, Validation, Methodology, Investigation, Formal analysis. **Afsheen Rezai:** Writing – review & editing, Visualization, Resources.

Declaration of competing interest

The authors declare that there is no conflict of interest.

Data availability

Data will be made available on request.

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