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Exploring the direct and indirect effects of EFL learners' online motivational self-system on their online language learning acceptance: the new roles of current L2 self and digital self-authenticity

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Abstract

The impact of students' intrinsic or extrinsic motivations on their future intentions for online language schooling has been widely documented, but further emphasis needs to be placed on examining motivation beyond traditional theories. Thus, the current study sought to pivot the focus from intrinsic and extrinsic motivation to university language learners' L2 self-identities in shaping their intention to learn language online. Toward this, we extended the technology acceptance model by integrating language learners' L2 motivational self-system (L2MSS). Accordingly, 422 Iranian territory students who learned language online completed surveys covering language motivation and attitudes toward online language learning. The results of partial least squares structural equation modeling validated that current L2-self and digital self-authenticity can be used as separable subcomponents of L2MSS in the Iranian territory context. Moreover, learners with a higher level of future self-image and current L2 self-description found online learning more useful and easy to use. A further finding revealed an authenticity gap among higher educators since they were more motivated to learn language online than in face-to-face classrooms. Besides introducing a new conceptual framework into the literature, the researchers suggest that as a way of influencing higher education language learners' intentions towards online language learning, lecturers should uncover language learners' future ideal selves in advance of attending this online language course and design their language syllabus accordingly. It is also imperative for instructors to encourage students to self-describe their progress during online courses as it influenced their behavioral intention to learn languages online.

Keywords: L2-motivational self-system, Current L2-self, Technology acceptance model, Authenticity gap, Online language learning, Digital self-authenticity

Introduction

With globalization, the notion of "deterritorialization" of language has emerged (Blommaert, 2010, p. 46) meaning that English does not belong to native speakers; instead, it is a lingua franca which everyone can learn and acquire. However, due to the diversity of the learning contexts, language learners may rely on psychological factors such as motivation, attitudes, and self-regulation (Farid & Lamb, 2020; Rahimi & Cheraghi, 2022) to preserve and succeed in their language learning process. Among these psychological factors, motivation has been known as the critical detriment and prerequisite factor that language learners need in order to acquire a second language (L2; Dörnyei & Ryan, 2015). As such, Dörnyei (2009) conceptualized traditional motivation, which does not depend on learners' pre-learning objectives, such as intrinsic, instrumental, and integrative motivations (Gardner, 1985). Infact, He holds that language learners' motivation is not determined by their interaction with the target language context but rather by their successful engagement with the actual usage of the language, and their self images (Farid & Lamb, 2020). Indeed, motivation is grounded on recognizing a disparity between current language skills and those sought in the future, and language learners strive to fill this void (Dörnyei, 2009).

Presently, information and communications technologies (ICTs) are successfully integrated into language classrooms and bring more educational opportunities than traditional language instruction. However, the successful implication of any ICTs in language classrooms relies, to a large extent, on language users' attitudes towards them (Hsu, 2022; Rahimi, 2023). Having been highlighted by recent studies, positive attitudes towards ICTs would lead users to accept the target ICTs (Hsu, 2022; Rahimi, 2023; Wang et al., 2022). Align with this, some contemporary researchs have emphasized a need to explore users' attitudes towards ICTs through psychological (Chen et al., 2020; Hsu & Lin, 2021), professional (Rahimi & Tafazoli, 2022), and technological factors (Hsu, 2022), helping administrators to have a better understanding of users' continued intention to design their programs. With specific attention to the psychological aspects, scholars posited that motivation is one of the main psychological factors acting as a prerequisite for developing language learners' psychological development (Fathali & Okada, 2018; Rahimi & Cheraghi, 2022; Zheng et al., 2018) and is the critical determinant for language learners to continue their effort (Dörnyei & Ryan, 2015; Lamb, 2017), and attitude (Fathali & Okada, 2018; Hsu, 2022; Hsu & Lin, 2021) in OLL. Confirming these views, recent studies in language education and educational technology have explored the role of college-age students' extrinsic and intrinsic motivation (Hsu & Lin, 2021), integrative and instrumental motivation (Dai et al., 2022), self-efficacy (Rosli & Saleh, 2022), self-determination theory (SDT, Fathali & Okada, 2018; Hsu, 2022) or flow theory (Wang et al., 2022) on shaping their attitudes toward online language learning or mobile-assisted language learning (MALL). The question raised here concerns the role of territory students' process-oriented motivation, such as the L2 Motivational Self-System (L2MSS), in influencing their behavioural intention regarding online language learning in the future.

Thus, in the current study, we attempted to cover the current gap and explore the relationship between learners' L2MSS and their attitudes towards online language learning. The first purpose of this study was to validate the factorial structure of the L2MSS in the Iranian higher education context. A second objective is to determine the direct, and

indirect impact of college students' L2-selves identities on their intention to learn languages online. In order to accomplish theses objects, the scholars formulated the following research questions:

- What are the factorial structures of the Iranian EFL learners' online motivational self-system, including ideal L2-self, ought-to L2-self, current L2-self, digital self-authenticity, and self-attribution in online language learning?
- To what extent do Iranian EFL learners' ideal L2-self, ought-to L2-self, current L2-self, digital self-authenticity, and self-attribution directly predict their perceived ease of use and usefulness and indirectly predict their behavioural intention to learn a language online?

Literature review

The L2 motivational self-system

In the field of language psychology, Dörnyei's (2009) L2MSS replaced one of the most conventional L2 motivation models, scilicet integrativeness. By synthesizing Markus and Nurius' (1986) Possible Selves Theory and Higgins' (1987) Self-Discrepancy Theory, Dörnyei L2MSS encompasses three dimensions: ideal L2 self, the ought-to L2 self, and L2 learning experience (Dörnyei, 2005). He declared that the initial attitude towards learning a language is the "successful engagement with the actual language learning process" (Dörnyei, 2009, p. 29) rather than integrating with target community. Thus, the ideal L2 self alludes to the language learners' future self-image to learn another language and to reach their ideal image, and objects in the future. The second aspect of L2MSS accounts for attribution that language learners should pass in order to avoid adverse outcomes, such as learning English for passing their language course. The language learning experience are intended to represent learner-situated and executive motivations in relation to the immediate learning context such as teaching materials, and teachers themselves all of which impact language learners' motivation (Fig. 1).

The L2MSS has been utilized by various studies and known as one of the most predicting frameworks to uncover language learners' attitudes towards learning another language (Farid & Lamb, 2020). Al-Hoorie's (2018) in his meta-analysis of L2MSS reported that, over 32 studies applied this theoretical framework to 30,000 cases across various language contexts, showing the predictive power of this theorithical framework in exploring language learners' motivation. It was also highlighted by Yousefi and Mahmoodi (2022) that this theoretical framework impacted language learners' motivation toward learning since 17 published studies involving 18,832 participants applied this framework. Therefore, they indicated that the L2MSS provides a solid theoretical framework for examining motivational behaviors among language learners. Although it appears to be an effective tool for learners in different language learning contexts, target languages, and learning outcomes, its construction is multifaceted, and its effectiveness varies with learners' age, gender, educational level, and geographical location, showing its context-specific nature, which is required to determine in Iranian EFL context, higher education, and online language learning context. Particulalrly, its new constructs, such as digital self-authenticity and the current L2-self, needs to be validate, and explore language learners' motivational bahavior in various language learning context (Henry &

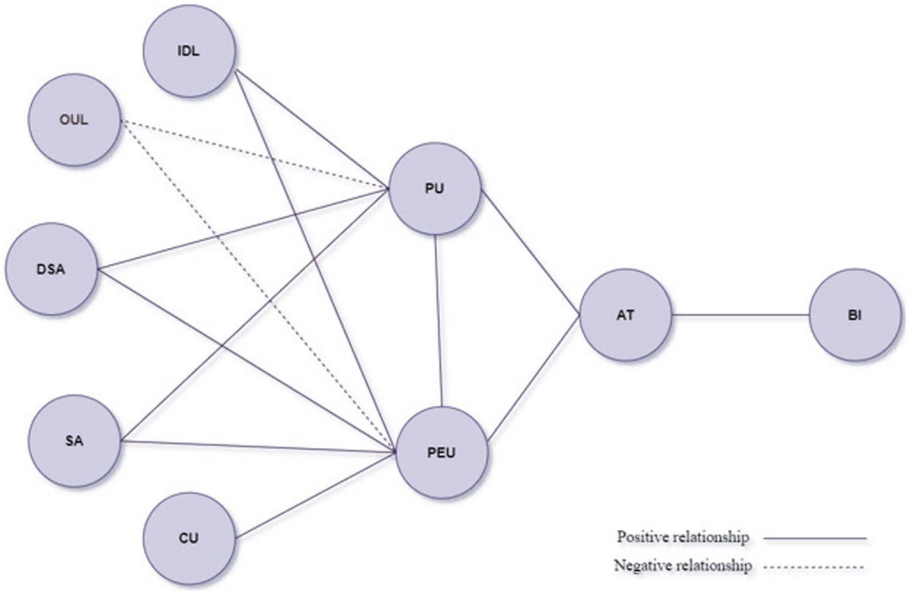

Fig. 1 Study hypothesized model

Cliffordson's, 2017; Rahimi, 2023; Smith et al., 2020; Thorsen et al., 2017). Based on these considerations, and recoemndetations we used L2MSS as the theoretical framework and operationalized the its components based on Henry and Cliffordson's (2017) and Smith et al.'s (2020) conceptual models as follows:

- *Ideal L2-self (IDL)* University language learners' personal future images of what they want to be by learning a language online, such as becoming a native speaker in the future.
- *Ought to L2-self (OUL)* College language learners acknowledge' to learn English online to pass some rubric such as passing their general English course in university to go next semester.
- *Digital self-authenticity (DSA)* University learners' dedicating motivation in online language class comparison with their face-to-face university class.
- *Self-attribution (SA)* College students attribute their success or failures in online language learning to their effort, motivation, and attitude.
- *Current L2-self (CU)* University students' self-descriptions about their current competence and abilities to use and learn language online, which has a reciprocal relationship with language contexts such as teachers, social expectations, and peer pressure.

Technology acceptance model (TAM)

The TAM model proposed by Davis (1989) was based on the theory of reason action (TRA; Fishbein & Ajzen, 1980), examining human behavior. However, TAM is employed, tested, and extended to dig further into any computer-based behavior in different learning contexts (Rahimi, 2023). More specifically, Davis (1989) introduced four underlying variables: perceived usefulness (PU), perceived ease of use

(PEU), attitude (AT), and behavioral intention (BI). PU alludes to the user's beliefs that the target system will improve his job performance (Davis, 1989). PEU deals with the degree to which a user supposes that implementing a particular system would be free of physical and mental effort (Davis, 1989). Moreover, in this model, AT refers to users' feelings about the behavior and performing it (Fishbein & Ajzen, 1977). Finally, BI presents the learner's intention to employ the target system in the future.

TAM delves into the relationships among these four variables. In accordance with this model, PU can be predicted by PEU. Simply put, when learners assume that the learning process can be efficient through a specific system, they will perceive a positive attitude towards it. Moreover, learners' belief in the easiness of system use leads to a positive direct effect on PU and ATT. Additionally, it indirectly affects BI, in which ATT is a mediator effect.

Current study: research model and hypotheses development

There have been calls for discovering the discrepancy between language learners' ideal L2 self and current L2 self in different language learning contexts (Henry & Cliffordson, 2017; Kangasvieri & Leontjev, 2021; Smith et al., 2020), digital self- authenticity (Rahimi, 2023; Smith et al., 2020) in OLL, extending previous findings in applied linguistics, and psycholinguistics (Rahimi & Cheraghi, 2022; Smith et al., 2020; Wang et al., 2023), exploring the role of language learners' motivation, particularly L2 selves on their language learning behaviors in OLL (Rahimi, 2023; Rahimi & Cheraghi, 2022; Zheng et al., 2018), extending the TAM model with other variables and escalating its explanatory powert in other contexts (Granić, 2022; Granić & Marangunić, 2019), and discovering the role of motivation in shaping language learners' technology acceptance in Computer-Assisted-Language Learning (CALL; Hsu, 2022; Hsu & Lin, 2021; Rahimi, 2023; Wang et al., 2022). We heed these calls by expanding the works by Henry and Cliffordson (2017) and Smith et al. (2020) and extending the TAM model with university students' L2 selves in an online language learning context.

As mentioned earlier, researchers have proposed that ideal L2 self, ought-to L2 self, and L2 learning experience (Dörnyei & Ryan, 2015) serve as the basis for language motivation, particularly in OLL (Rahimi, 2023; Smith et al., 2020). Based on previous studies college students' ideal L2 self is positively correlated with their psychological behaviors, such as self-regulation, learning performance, and effort in online language context (Rahimi & Cheraghi, 2022; Smith et al., 2020; Zheng et al., 2018). Conversely, the ought to L2-self was negatively correlated with university learners' language learning performance and behaviors (Shen et al., 2020). Hsu and Lin (2021) further demonstrated that college students' intrinsic motivation had a positive relationship with their PEU and PU toward MALL, while their extrinsic motivation had a negative association. In Iranian higher education, the impact of these two constructs on language learners' attitudes towards OLL still needs to be clarified. Accordingly, we hypothesized that Iranian university students with a greater sense of their future self will be more positive about the usefulness and ease of online language learning, whereas students with passing rubrics are likely to perceive online language learning as less useful and easier to use.

- H1: Ideal L2 self positively predicts ease of the use (H1a), and usefulness (H1b) online language learning.
- H2: Ought-to L2 self negatively predicts ease of the use (H2a), and usefulness (H2b) online language learning.

Online language learning has received a wide currency among territory language learners due to its flexibility and availability outside of the learning context (Rahimi & Tafazoli, 2022). There is evidence that uninstructed context negatively influenced learners' motivation (Lamb & Arisandy, 2019) and effort (Henry, 2013). These findings were triggers for Henry (2013) to address the "authenticity gap" that students will experience "suppressed self-authenticity" and ultimately "lower motivation and satisfaction" (as cited in Smith et al., 2020, p. 3). Ushioda (2011), however, argued that the rigid context of the classroom environment hindered language learners' self-expression, creativity, and motivation. Moreover, Henry and Cliffordson (2017) found that the informal out-of-classroom context negatively correlated with learners' learning efforts and weakened their motivation in tarditional classes. By replicating their work in the Chinese context, Smith et al. (2020) found that both digital self-authenticity and general authenticity positively predicted Chinese university learners' language efforts. A deeper understanding of the *authenticity gap* in Iranian EFL context, especially in territory education, needs to be gained. In light of this gap, we develop the following hypotheses:

H3: Digital self-authenticity positively predicts ease of the use (H3a), and usefulness (H3b) online language learning.

Addressing the need for more exploration of learners' motivation, researchers have begun to investigate the key motivational cognitions, including learners' beliefs and attribution (Smith et al., 2020). According to Weiner (2010), attribution alludes to a particular notion that learner has about their success or failure, relating to their effort to complete target activities. Markus and Ruvolo (1989) mentioned that individual beliefs constitute their possible selves. In other words, beliefs root in consciousness and have a reciprocal correlation with individual possible selves and motivation (Dörnyei, 2009). According to Smith et al. (2020), attribution were linked with L2MSS and effort. What is more needed is the role of learners' attribution in shaping their attitudes towards OLL. To explore this gap we hypothesized that:

H4: Self-attribution positively predicts ease of the use (H4a), and usefulness (H4b) online language learning.

In addition to the L2MSS constructs, the current L2 self is another construct that has recently been added and validated to online language motivation by Smith et al. (2020). According to Kangasvieri and Leontjev (2021), it represents learners' self-descriptions about their current competence and abilities to use language which has a reciprocal relationship with language contexts such as teachers, social expectations, and peer pressure. Previous surveys have emphasized the role of current L2-self in shaping territory learners' learning performance (Henry & Cliffordson, 2017; Smith et al., 2020; Thorsen et al., 2017), in spite of this fact, its emotional impact on language learners' has not been clearly identified, the researchers proposed the following hypotheses:

H5: Current L2 self positively predicts positively predicts ease of the use (H5a), and usefulness (H5b) online language learning.

According to Davis (1989), perceived usefulness is predicated on perceived ease of use, and both of them significantly would predict users' attitudes towards the system. As declared by Hair et al. (2021) moderating variables will render more generalizability of the research findings. The two antecedents of attitudes in the TAM model, however, were neglected in some studies, (i.e., Şahin et al., 2022; Tseng et al., 2022) leading to a misperception that their mediating role in shaping users' intentions towards the target system. Our study will identify them as mediators between learners' online L2 self-identities and attitudes toward online language learning. Consequently, we hypothesized that both PEU and PU would a mediator role between college learners' L2MSS and their attributions within their attitudes. That is to say, should online learning be easy to use, students will find it helpful, resulting in a positive attitude toward online learning. Moreover, attitudes can mediate university students' PEU and PU and their intention to use online learning in the future.

- H6: Learners' perceived ease of use of online learning positively predicts perceived the usefulness (H6a), and attitudes toward (H6b) online language learning.
- H7: Learners' perceived usefulness positively predicts attitudes towards online language learning.
- H8: Learners' attitudes toward online language learning positively predict their behavioral intention.

Drawing on two theoretical frameworks and previous findings on L2MSS and TAM, this study proposed a model in which L2MSS variables, self-attribution, and digital self-authenticity were the predictors of PEU and PU and both positively mediated learners' attitudes towards online language learning, and behavioural intentions. However, ought to L2-self will have a negative correlation with the two indicators. Moreover, three antecedents of behavioural intention, including perceived usefulness, perceived ease of use, and attitudes, mediate the relationship between language learners' online motivational self-system and their behavioural intention to learn a language online in the future.

Methodology

Research context, and participants

The study was conducted at two universities in Ardabil between the winter and summer semesters of 2020–2022. Prior to the collection of the data, the ethics committee of the university and related departments approved the data collection. During each semester, two general English classes were held three times a week, each lasting 4 months. Participants had access to a learning management system (LMS) hosted by Mohaghegh Ardebili and the Azad University of Ardabil. Their four skills of writing, speaking, reading, and listening were covered in the general course content. All participants received the same course materials and were taught by the same professor (second author). Two criteria were required for students to pass their course semester: evaluation of their speaking skills as an oral exam and their online language test as their final written exam covering the course. As a result of the requirement for a large number of responses to validate the study constructs and to cover learners' L2 self-identities, the researcher has chosen a simple non-probability sampling method because all participants are equally

and independently eligible for the study (Ary et al., 2006). In fact, it covers populations with various backgrounds, specialists, and educational experiences who might learn the language to pass their ought-to L2 self, learn it for personal self-image (Ideal L2-self), or assess their current competence and abilities in language learning (Current L2 self). Thus, the random sampling method is consistent with the study objective since it enhances generalizability, allows for comprehensive coverage of all factors, and helps researchers to minimize biasing the results.

A pool of 422 participants took part in this study, of whom 227 were female (53.8%), and 195 were male (46.2%) to took part in general English class, majoring in law (N = 109), mechanical engineering (N = 119), science (N = 104), and psychology (N = 90). With respect to age, all participants were within the age range of 18, and above 27. Table 1 shows the participants' democraphic information.

Instruments

The data was collected through the questionnaire which was of three parts in this study. The first part tapped into the participants' demographic information, namely gender, age, major, and informed constent. The second part had 18 items rated on a 7-point Likert type scale in which 1 represented *strongly disagree* to 7 represented *strongly agree*. This part deals with the learners' motivational self-system in an online language learning context. We measured learners' IDL with four items such as "e.g., If my dreams come true, I will use English effectively in the future" (Henry & Cliffordson, 2017). The Out to L2-self with three items such as "I have to learn English online because I don't want to fail in general English course" Were adapted from Zheng et al. (2018). The digital self-authenticity four items including " I get greater personal motivation when I speak English online than I do when I speak face-to-face classrooms" Were adapted from Smith

Table 1 Study participants

	N	%
Gender		
Male	227	53.8
Female	195	46.2
Age		
Years		
18–19	27	6.4
20–22	224	53.1
23–25	160	37.9
25 +	11	2.6
Majors		
Science	104	25
Psychology	90	21
Law	109	26
Mechanical engineering	119	28
Years of education		
Freshmen	85	20
Sophomore	125	30
Junior	137	32
Senior	75	18

et al. (2020). Similarly, three self-attribution items such as "My skills in using English in online class are largely come from my own natural ability" were adapted from Henry and Cliffordson (2017). The current L2-self with four items such as "I see myself as someone who is good at speaking/using English in online environment" were adapted form Smith et al. (2020).

The third part of the questionnaire measured participants' attitudes towards online language learning with 15 statements. Four items of PEU, including "It is easy for me to learn English online" Were adapted from Davis (1989). Moreover, four items of PU such as "online language learningenables me to pass my general English course in university" were adapted from Davis (1989). The behavioral intention (BI) and attitude with three and four items were adapted from Atif et al. (2015). A sample item of AT includes, "Online language learning is a good idea for gerneral English class in university," and BI includes "I intend to use online learning cources next semester for my generallanguage class in university".

Data analysis procedure

The statistical package for the social sciences (SPSS) and PLS-SEM were applied for data analysis in this study. The multivariate analysis was executed by grafting principal components analysis with ordinary least squares regressions composite-based model (Hair et al., 2021). The primary reasons for choosing this method in the current study were four reasons: (1) the composite-based models were not sensitive to the normality of datasets (Hair et al., 2021) and it has a casual-predictive nature and is suitable for explanatory research and theory development (Ringle et al., 2012). Additionally, the PLS-SEM analyses the data simultaneously in two complex phases, namely the measurement and structural phases. During the first phase, indicators correlation to latent variables are specified, and in the second phase, relationships between latent variables are examined (Hair et al., 2021; Sarstedt et al., 2014). Additionally, it could evaluate both moderation and mediation effects simultaneously (Sarstedt et al., 2020). Compared with covariance-based models, composite-based models are more effective at predicting complex models and correlations (Hair et al., 2021).

Results

Measurement model

It is necessary to calculate the descriptive statistics of variables before we move on to the measurement model. As per Table 2, the average means of all variables were greater than 3.5, indicating that most students opted for the top options.

The measurement model sought to estimate the relationship between latent variables and their indicators in four steps compromising: (1) evaluating the factor loading, (2) assessing the reliability, (3) assessing the convergent validity, and (4) assessing the discrminant validity (Hair et al., 2021).

To measure reliability, Cronbach's alpha and composite reliability (rho_a) and (rho_c) were employed. Hair et al. (2021) recommend a cut value of 0.70 for all of them. According to Hair et al. (2021), convergent and discriminant validity should be considered as part of the PLS-SEM measurement phase. The convergent validity shows the degree to which a latent construct explains the variance of its indicators

Table 2 Descriptive statistics, reliability, and validity

Variables	Composite reliability (rho_c)	Composite reliability (rho_a)	Cronbach's alpha	AVE	Mean	Standard deviation	Variance statistic
AU	0.934	0.914	0.89	0.82	4.21	1.10	1.22
AUD	0.938	0.919	0.91	0.79	4.63	1.44	2.07
BI	0.925	0.893	0.89	0.75	4.03	1.24	1.55
CU	0.941	0.918	0.91	0.79	4.59	1.41	1.99
IDL	0.937	0.912	0.91	0.78	4.31	1.26	1.59
OUL	0.931	0.896	0.88	0.81	3.94	0.89	0.79
PEU	0.845	0.756	0.75	0.57	3.85	0.96	0.92
PU	0.855	0.776	0.77	0.59	4.30	1.07	1.15
SA	0.927	0.883	0.88	0.81	4.01	1.20	1.44

Table 3 Discriminant validity

	AT	BI	CU	DSA	IDL	OUL	PEU	PU	SA
AT	**0.910**								
BI	0.699	**0.869**							
CU	0.411	0.439	**0.894**						
DSA	0.431	0.596	0.366	**0.890**					
IDL	0.507	0.623	0.354	0.515	**0.888**				
OUL	0.480	0.618	0.282	0.454	0.514	**0.905**			
PEU	0.451	0.549	0.544	0.497	0.524	0.441	**0.759**		
PU	0.564	0.594	0.529	0.490	0.531	0.436	0.559	**0.773**	
SA	0.350	0.371	0.550	0.256	0.272	0.146	0.458	0.444	**0.900**

Numbers in bold represent the square root of the AVE

(Hair et al., 2021). In this line we used the average variance extracted (AVE) to test convergent validity. It is equivalent to the commonality of a group of indicators and is calculated by summing all squared loadings of a set of indicators (Hair et al., 2014). AVE is equivalent to the commonality of a group of indicators and is calculated by summing all squared loadings of a set of indicators (Hair et al., 2014). Hair et al. (2021) recommend that AVE should be above 0.50. As shown in Table 2, all latent variables had reliability and validity values above 7.0 and 5.0.

The researchers simultaneously applied the Fornell–Larcker criterion (1981) as well as the Heterotrait-Monotrait ratio (HTMT) criteria proposed by Henseler et al. (2015) when assessing discriminant validity, which is a measure of whether a construct is empirically distinct from the other constructs in the structural model simply put, how well it measures what it is intended to measure (Hair et al., 2021).

According to Fornell and Larker (1981) the values of $\sqrt{A}$ should be higher than the other constructs and their relationship with other constructs, or in other words variances between the construct and its indicators are greater than those between any other construct. or Each construct's AVE must be greater than its highest squared correlation with any other construct in order to satisfy this requirement. Table 3 displays latent variables' discriminant validity.

Morover, The HTMT assesses the mean value of indicator items among the other indicators' mean of average correlation. According to Henseler et al. (2015), this mean value should be less than 0.85 or 0.90. Table 4 displays the HTMT results.

Structural model

Using the higher-order structural model, the model's predictive power was estimated to uncover latent variable causal correlations. For this sake, Path coefficient (β) was applied to estimate the significance of the hypothetical causal correlations between the latent variables. As addressed by Hair et al. (2021), β value should range from −1 to +1; the higher the level of value, the higher the significance of the relationship among the variables. The f-square was also implemented to measure the effect size and the intensity correlation among the latent variables. The values of 0.02, 0.15, and 0.35 showing small, medium, and large effect sizes, respectively (Hair et al., 2021).

Moreover, the variance inflation factor (VIF) is applied to evaluate the level of collinearity. According to Hair et al. (2021), a multicollinearity problem occurs when the VIF of all endogenous variables is over 4.0, showing no collinearity problem between the model's independent variables. Table 5 illustrates that all the paths in the model were statistically confirmed; the coefficient correlations within HEs' L2 motivational self-system with PEU and PU support H1a, H1b, H3a, H3b, H4a, H4b, H5a, H5b, However, the OUL had positive and significant coefficients with both PU and PE, thus the H2a, and H2b were rejected. The H6a, H6b, H7, and H8 were significant and supported study hypotheses. Furthermore, the intensity of the effect of CU on PEU was greater than that of other online self-motivational variables. PU also exerted a more significant effect on AT than PEU. A hypothesis is confirmed or rejected if the t-value exceeds 1.96 and the p-value is less than 0.05. Table 5 shows each path's path coefficient, effect size, and significant levels.

A direct analysis was performed with a subsample of 5000 to determine the direct effects of OLLM on attitudes and behavioural intention constructs. All motivational factors were directly associated with learners' attitudes and their behavioural intentions, with digital self-authenticity being the most strongly associated (DSA → AT; β = 0.124 Coefficient of Interval (CI); 0.074–0.177). The results of the direct analysis are shown in Table 6.

Table 4 Heterotrait-monotrait ratio (HTMT)—Matrix

Variables	AT	DSA	BI	CU	IDL	OUL	PEU	PU	SA
AT									
DSA	0.478								
BI	0.782	0.664							
CU	0.455	0.397	0.485						
IDL	0.560	0.566	0.691	0.386					
OUL	0.536	0.506	0.693	0.313	0.573				
PEU	0.548	0.596	0.670	0.650	0.630	0.537			
PU	0.680	0.582	0.717	0.628	0.631	0.527	0.734		
SA	0.396	0.286	0.420	0.611	0.303	0.164	0.560	0.538	

Table 5 Result of the structural model

Hypothesizes	Path	β	t-value	Sig	f^2	VIF	Result
H1a	IDL → PU	0.203	4.32	0.000	0.047	1.726	Confirmed
H1b	IDL → PEU	0.213	5.17	0.000	0.055	1.636	Confirmed
H2a	OUL → PU	0.122	3.08	0.002	0.020	1.517	Rejected
H2b	OUL → PEU	0.152	4.06	0.000	0.031	1.471	Rejected
H3a	DSA → PU	0.142	2.94	0.003	0.025	1.586	Confirmed
H3b	DSA → PEU	0.175	4.19	0.000	0.039	1.526	Confirmed
H4a	SA → PU	0.155	2.94	0.001	0.031	1.530	Confirmed
H4b	SA → PEU	0.192	4.38	0.000	0.050	1.458	Confirmed
H5a	CU → PU	0.207	4.26	0.000	0.048	1.733	Confirmed
H5b	CU → PEU	0.257	5.77	0.000	0.081	1.603	Confirmed
H6a	PEU → PU	0.145	2.07	0.038	0.021	1.971	Confirmed
H6b	PEU → AT	0.197	3.89	0.000	0.118	1.455	Confirmed
H7	PU → AT	0.454	9.93	0.000	0.216	1.455	Confirmed
H8	AT → BI	0.699	20.51	0.000	0.956	–	Confirmed

Table 6 Reuslt of the direct analysis

Path	β	2.5%	97.5%	t-value	*p* value
DSA → AT	0.124	0.074	0.177	4.745	0.000
DSA → BI	0.086	0.050	0.128	4.403	0.000
CU → AT	0.167	0.113	0.219	6.118	0.000
CU → BI	0.116	0.077	0.158	5.689	0.000
IDL → AT	0.168	0.118	0.222	6.333	0.000
IDL → BI	0.118	0.080	0.158	5.832	0.000
OUL → AT	0.042	0.016	0.075	2.782	0.005
OUL → BI	0.029	0.011	0.054	2.686	0.007
SA → AT	0.117	0.068	0.168	4.594	0.000
SA → BI	0.082	0.047	0.119	4.415	0.000

In order to explore the role of mediator variables on the direction between language learners' online motivational, their attitudes, and behavioral intentions, the indirect bootstrap analysis was applied. The result of the serial mediation analysis showed that except (IDL → PEU → PU → AT → BI; $\beta = 0.010$), (OUL → PEU → PU → AT; $\beta = 0.010$), (OUL → PEU → PU; $\beta = 0.022$), (DSA → PEU → PU → AT; $\beta = 0.011$), (CU → PEU → PU → AT → BI; $\beta = 0.012$;), (OUL → PEU → PU → AT → BI; $\beta = 0.07$), (DSA → PEU → PU → AT → BI; $\beta = 0.08$), and (SA → PEU → PU → AT → BI; $\beta = 0.009$), the three antecedents to language learners' behavioral intentions significantly mediated the relationship between language learners' online motivation, and their future intention to learn language online. Table 7 displays the result of the serial mediation analysis.

A coefficient of determination (R^2), was used to measure the robustness of exogenous variables in predicting endogenous latent variables. (Hair et al., 2021). It shows the proportions of variation for exogenous variables (L2 selves) and grafted effects on endogenous variables (attitudes). The values of 0.19, 0.37, and 0.067 indicate weak,

Table 7 Reuslt of serial mediation analysis

Path	β	2.5%	97.5%	t-value	*p* value
CU → PEU → AT → BI	0.035	0.015	0.060	3.107	0.002
SA → PEU → PU	0.028	− 0.001	0.061	1.774	0.076
OUL → PEU → AT → BI	0.021	0.007	0.041	2.390	0.017
CU → PU → AT	0.094	0.046	0.145	3.770	0.000
DSA → PEU → PU	0.025	− 0.001	0.056	1.774	0.076
IDL → PEU → AT	0.042	0.016	0.074	2.887	0.004
IDL → PEU → AT → BI	0.029	0.011	0.052	2.803	0.005
CU → PEU → PU	0.037	− 0.001	0.078	1.847	0.065
SA → PU → AT	0.070	0.027	0.118	3.054	0.002
PEU → PU → AT	0.065	− 0.001	0.130	1.995	0.046
SA → PEU → AT	0.038	0.015	0.066	2.935	0.003
CU → PEU → AT	0.051	0.022	0.084	3.191	0.001
IDL → PEU → PU	0.031	− 0.001	0.069	1.763	0.078
DSA → PEU → AT	0.034	0.013	0.064	2.643	0.008
SA → PU → AT → BI	0.093	0.019	0.117	3.019	0.003
IDL → PU → AT → BI	0.065	0.033	0.103	3.654	0.000
IDL → PEU → PU → AT → BI	0.010	0.000	0.021	1.798	0.072
PEU → AT → BI	0.138	0.064	0.212	3.693	0.000
PEU → PU → AT → BI	0.046	− 0.001	0.092	1.983	0.047
OUL → PU → AT → BI	0.039	0.013	0.069	2.721	0.007
DSA → PU → AT	0.065	0.020	0.111	2.791	0.005
OUL → PU → AT	0.055	0.019	0.097	2.782	0.005
OUL → PEU → PU → AT	0.010	0.000	0.023	1.709	0.088
SA → PEU → PU → AT	0.013	0.000	0.027	1.799	0.072
PU → AT → BI	0.317	0.247	0.389	8.674	0.000
OUL → PEU → PU	0.022	0.000	0.052	1.651	0.099
DSA → PEU → PU → AT	0.011	0.000	0.025	1.811	0.070
IDL → PEU → PU → AT	0.014	0.000	0.030	1.807	0.071
OUL → PEU → AT	0.030	0.010	0.057	2.468	0.014
DSA → PEU → AT → BI	0.024	0.009	0.045	2.587	0.010
DSA → PU → AT → BI	0.045	0.014	0.080	2.697	0.007
CU → PEU → PU → AT → BI	0.012	0.000	0.025	1.888	0.059
OUL → PEU → PU → AT → BI	0.007	0.000	0.016	1.692	0.091
SA → PEU → AT → BI	0.026	0.010	0.047	2.834	0.005
CU → PEU → PU → AT	0.017	0.000	0.035	1.894	0.058
IDL → PU → AT	0.092	0.048	0.144	3.744	0.000
DSA → PEU → PU → AT → BI	0.008	0.000	0.018	1.806	0.071
CU → PU → AT → BI	0.066	0.032	0.103	3.667	0.000
SA → PEU → PU → AT → BI	0.009	0.000	0.019	1.784	0.075

moderate, for this criteria (Hair et al., 2021). The coefficient of determination of BI (0.489), AT (0.345), PEU (0.493), and PU (0.490) have been obtained at a suitable level, and changed 48.9% of BI, 34.5% of AT, 49.3% of PEU, and 48% of PU. Moreover, the predictive relevance (Q^2) was applied to the model, and all of them were above zero (Hair et al., 2021). As Table 8 demonstrates, all the model's endogenous variables had a suitable level, suggesting the appropriate predictive power of the model.

Table 8 The result of the coefficient of detriminations

Variable	Q^2	R^2
BI	0.366	0.489
AT	0.282	0.345
PEU	0.276	0.493
PU	0.285	0.490
	$GOF = \sqrt{\overline{Communalities} \times \overline{R^2}} = \sqrt{0.865 \times 0.454} = 0.626$	
	$SRMR = 0.043$	

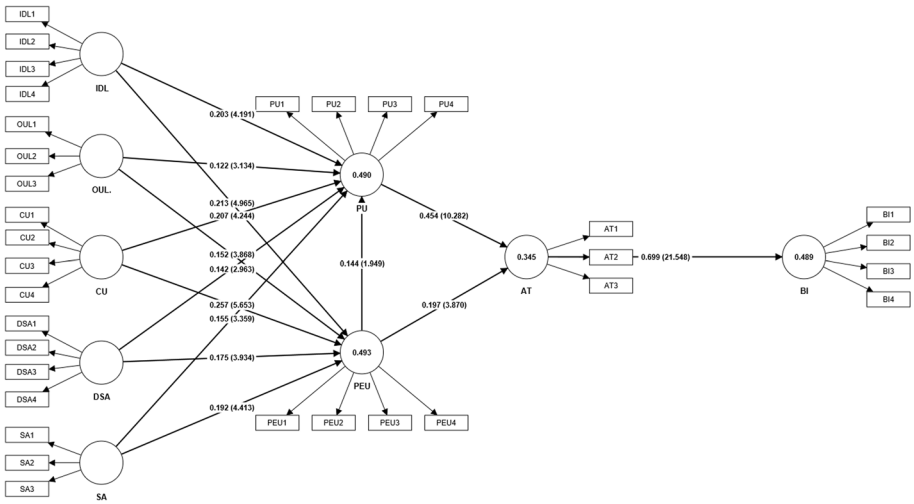

Fig. 2 Result of structural model

Lastly, the model fit was estimated by goodness of fit (GOF) and standardized root mean square residual (SRMR). As mentioned by Hu and Bentler (1999), good SRMR values are less than 0.10 and 0.08. Similarly, the values of 0.01, 0.25, and 0.36 are weak, medium, and general solid fit GOF (Wetzels et al., 2009). The GOF and SRMR were calculated to be 0.626 and 0.043, respectively, which indicates a strong model fit. The structural model fit indices are presented in Table 8. Figure 2 result of structural model.

Discussion

The factorial structure of online L2 motivational self-system

The study's initial objective was to validate the factorial structure of the present conceptual model at the territory level of the Iranian EFL context, especially the recent additions of digital-self authenticity and current L2-self. As a result, the reflective phase of the PLS-SEM validated these L2 motivational. Thus, in addition to validating the Current L2-self in Finland (Kangasvieri & Leontjev, 2021) and Chinese (Smith et al., 2020) and Digital self-authenticity in Chinese (Smith et al., 2020), Sweden (Henry & Cliffordson, 2017), and LMOOC (Rahimi, 2023) contexts, the first phase of the study validated these two L2MSS components in Iran, for higher education in an online language context, and added it to the language motivation literature.

Relationship between online motivational self-system, and language learners' attitudes

To gain insight into the relationship between learners' motivation and their attitudes, the formative model showed that language learners' ideal L2-self predicted both PU (β = 203), and PEU (β = 213). Accordingly language learners who had positive future images for learing language find online language learning to be a convenient and useful instrument to reach their vivid personal images. This echoes the previous studies which discovered that learners with intrinsic motivation had a positive attitude towards ICTs integration in language learning (Hsu & Lin, 2021). The possible ground for this result might rest on Iranian EFL learners' relatively higher level of ideal L2 self particularly in the online language context (Rahimi, 2023). According to Rahimi (2023) Iranian EFL learners with higher levels of instrumentality-promotion (e.g., being able to be a fluent speaker) and positive attitudes towards English language culture (e.g., watching TV programs online) took online courses effectively. Thus, they perceived online courses as an effective tool in which they could reach their future goals and contact with the target culture without effort.

Aside from confirming that language learners' ideal L2-self influences effort (Smith et al., 2020) and online self-regulation (Rahimi & Chearghi, 2022; Wang et al., 2023), this finding lends additional evidence to the literature regarding its role in shaping language learners' online attitudes. Moreover, the casual correlation between the ideal L2 self and PEU was more potent than PU, meaning that college language learners perceived the ease of using OLL more than its usefulness as a tool that will help them reach their future image of learning the language. This finding contradicts Hsu and Lin (2021), who found that intrinsic motivation had a more substantial effect on language learners' PU than PEU in Mobile Assisted Language Learning (MALL).

Unexpectedly, OUL had positive correlation with two antecedents; however it had a minor variance in predicting PEU ($\beta = 0.152$) and PU ($\beta = 0.123$) among the ideal selves' variables. Due to this, the participants who learn the language to pass some rubrics or merely satisfy others perceived the process of online language learning to be more valuable than its actual use. It is important to note that these findings contrast with those reported in previous international studies, indicating that OUL negatively correlated with Chinese college students' psychological behavior, such as online self-regulation (Zheng et al., 2018) and their learning performance (Shen et al., 2020; Wei & Xu, 2021) since we found a positive correlation between OUL and emotional behavior among Iranian university students. A plausible explanation for the results of the current study may be that university students must pass their online general English course to continue their education; therefore, they may learn English to pass certain rubrics to meet their educational objectives. According to Rahimi and Cheraghi (2022), Iranian EFL learners with a high level of instrumentality-prevention and others' expectation can positively manage their online language learning by selecting their time, setting goals, asking for help, and evaluating themselves in an online language learning context.

To our knowledge, this study is the first study tended to examine the authenticity gap in the Iranian higher education, and OLL. Accordingly, the DSA positively predicted university learners' perceived ease of use and usefulness of online language learning. Thus, the sign of authenticity gap in the Iranian higher education was discovered. This finding, in line with Henry and Cliffordson (2017), posited that the authenticity gap,

mainly digital, negatively influenced learners' efforts (particularly in western countries). According to Henry and Cliffordson (2017), "experiences of frustrated authenticity" (p. 20) negatively influence language learning behaviors as they dedicate more time and effort to the digital learning context than the traditional one. It also could be related to the navigability, adaptability, and multimodality aspects of OLL, as language learners access an ample number of authentic and virtual materials, and they do not need to follow teachers' *mirrors in-class tasks,* repeat what the teachers pronounce, or adhere to a particular set of grammar rules (Rahimi, 2023). It can be concluded that, in the Iranian territory education context, learners have higher motivation to take an online course in comparison with face-to-face university classes as a means to improve their English beyond their structured context (Hsu, 2022) to reach their ideal future self (Smith et al., 2020), to integrate with target culture (Wang et al., 2023; Zheng et al., 2018), to immigrate to English countries (Rahimi, 2023), or to solve their problem with peers in digital games (Ushioda, 2011). This result contradicts Lamb (2017) and Smith et al. (2020) who reported no authenticity gaps in Indonesian and Chines EFL contexts.

As Smith et al. (2020) stated the intention might encourage Chinese EFL learners to be self-authentic to keep up with global English. This study identified a correlation between students' intentions and their digital authenticity which was recommended by Smith et al. (2020) to be examined. Thus, Iranian college students found OLL as a self-authentic context that helped them acquire English with a lower level of effort and find it a powerful instrument for language learning. It seems possible that these results are due to the participants since they had a higher level of ideal L2 self (see hypotheses 1 and 2) towards OLL, leading them to perceive online contexts as useful instruments to dedicate more motivation and attitude towards it since they communicate in forums, and virtual worlds (Lamb & Arisandy, 2019; Ushioda, 2011). Another possible explanation for this is that in our online language class, the second author cover "birding activities" (Thorne & Reinhardt, 2013) she integrated both traditional language schooling and learners' life experience and future needs, bringing about learners' high engagement and agency out of class.

The outer model also revealed that learners' attribution positively predicted both ease of use ($\beta = 0.192$) and usefulness ($\beta = 0.155$) of online language learning. Based on this result, it can be inferred that Iranian university learners attribute their success in OLL to its ease of use and usefulness and their locus shifted to online language learning. If learners perceive a higher sense of success in an online language setting, they follow a higher level of attitudes towards it, which is driven by the ease of use and usefulness of target context. This result contradicts Smith et al. (2020) declared that Chinese university learners attribute their language success to a structured learning context. Deci and Ryan (1985) support our assertion in their SDT theory which posited that learners are intrinsically motivated to non-instructional language settings as they can learn anytime, anywhere. Similarly, Henry and Cliffordson (2017) found that language learners were likely to attribute their success to unstructured learning contexts rather than school-related activities.

The formative analysis also showed that learners' current L2 self had the highest shared variance among the L2 selves latent variables as this construct could predict online learning as ease of use ($\beta = 0.257$), and usefulness ($\beta = 0.205$). This finding

is exhilarating, though, not expected. This implied that learners with current language competence and skills could learn English without effort to achieve their objectives. This is in line with *keep on chasing*, addressed by Thorsen et al. (2017), that language learners always want to attain better by evaluating their current language skills and future goals. Hence, it can be concluded that university learners with the current language competence and their future ideal image recognize online language learning as a tool to reach their goals with less effort.

The correlation between college students' current L2 selves and the perceived usefulness of online language learning was also notable. This result might be due to Iranian EFL learners' high level of self-evaluation in online language learning. According to Rahimi and Cheraghi (2022), Iranian EFL learners with a higher level of L2 selfs evaluated themselves positively in the online language learning course, causing them to rethink and improve the level of their current fit as the course progressed. Another possible explanation is the role of peers' and others' expectations in shaping language learners' current L2 self (Kangasvieri & Leontjev, 2021; Yung, 2019), impacting their attitudes towards online language learning.

Recent studies reported contradictory discoveries about the correlation between perceived ease of use, perceived usefulness, and users' attitudes. In some surveys, perceived ease of use positively contributed to both perceived usefulness and users' attitudes (Fathali & Okada, 2018; Hsu & Lin, 2021), while other studies claimed that it did not have any significant influence (Wang & Wang, 2009). Our finding is consistent with the first group of studies. Furthermore, the higher the level of participants' attitudes, the more their willingness to enroll in online language schooling. Accordingly, the result suggested that Iranian university learners perceived less difficulty in learning English online which, in turn, contribute to their perceptions about the system possibilities for learning English online and shaping positive attitudes towards its performance and willingness to utilize online language learning in the future. These results may be explained by the fact that online language learning provides flexible and ubiquity features with a user-friendly context that language learners could commute with peers, evaluate their current performance (current L2 self), ask for help from others to pass their criteria (out to L2-self), and reach their future self that might relate to their attribute for success (ideal L2 self and self-attribution).

Coming to indirect analysis, the bootstrap analysis showed that all the online motivational self-system constructs were significantly associated with language learners' attitudes and behavioral intentions toward online language learning. Further, a discrepancy was found between Current L2-self and ought L2-self, in predicting language learners' attitudes toward online language learning, which was recently reported in shaping Chinese online language learning effort (Smith et al., 2020). Furthermore, the indirect bootstrap analysis revealed that except nine serial correlations, including (IDL → PEU → PU → AT → BI) (OUL → PEU → PU → AT) (DSA → PEU → PU → AT) (SA → PEU → PU → AT), (DSA → PEU → PU → AT), (IDL → PEU → PU → AT), (CU → PEU → PU → AT → BI) (CU → PEU → PU → AT), (DSA → PEU → PU → AT → BI) and (SA → PEU → PU → AT → BI), all the serial correlations were significantly supported. Thus, in all these non significance serial correlations, the mediators acted as moderators rather than mediators because they

indirectly altered significant directions into nonsignificant ones (MacKinnon, 2011). As a result, these variables caused the flipping effect; accordingly, the direct-only non-mediation observed as the direct effect was significant, while the indirect one was nonsignificant (Hair et al., 2021). Furthermore, a supperiaon also occurred by PU and AT since they escalated the variance shared variance from 0.82 in (SA → BI) to 93 in (SA → PU → AT → BI).

Conclusion

In light of exploring the role of motivation in language learning, the present study delved into validating the new factorial structure of L2MSS in online language learning in the Iranian EFL context and uncovering these factors shaping language learners' attitudes toward OLL. In general, participants perceived the ease of the use of OLL more than its uses, meaning that the easy-to-use features of OLL help language learners to achieve their future ideal image, pass others' expectations, develop their own current L2-self, and attribute their success in learning language in such a context. Since our model predicted 49% of language learners' behavioral intentions to learn a language online, the study has implications for pedagogy and practice in our field.

Theoretical contribution

In five points, the study findings had theoretical contributions to the Applied linguistic, psycholinguistic, CALL, and language motivation. Firtsly, the study validated that the current L2, and ideal L2-self were distinct from each other in Iranian EFL context, and OLL. Seccondly, the study is the first study that tended to cover the *authenticity gap* in the territory level and validated digital self-authenticity as a separable sub-component of L2MSS in higher education. These discrepancies are conceptualized as a critical determinant of college students' intention toward online learning context. Another noteworthy contribution is extending previous studies on the role of language learners' motivation and L2 self-image in shaping language learners' learning behaviors, such as their effort (Henry & Cliffordson, 2017; Smith et al., 2020), self-regulation (Rahimi, 2023; Wang et al., 2023; Zheng et al., 2018) to their attitudes in online language learning. Furthermore, this study introduced further extension model of TAM to CALL, recommended by previous researchers (Granić, 2022; Nkomo et al., 2021) by shedding more light on language learners' L2MSS. Moreover, the current survey shifted the view from discovering the role of motivation (e.g., extrinsic, intrinsic, or goal orientation) in shaping language learner technology acceptance to CALL, and higher education (Fathali & Okada., 2018; Hsu, 2022; Hsu & Lin, 2021; Wang et al., 2022) to illuminate their motivational self-system such as current L2 self, self-attribution, and digital self-authenticity that have not been addressed in the previous literature. At last, the research introduced another conceptual model for L2MSS and TAM, focusing on territory education, opening doors for future researchers to shift their perspectives from traditional motivational theories to process-oriented views.

Practical implication

Taking a macro, meso, and micro perspective, the findings have practical implications. At the first level, higher educators should run a need analysis, uncover language

learners' ideal future selves to learn a language online and provide their online language course syllabi based on them. Not only should lecturers design their language course based on their learners' future needs, but they should also cover the rubrics and others' expectations that language learners should pass to achieve their goals in online language learning. They should also escalate language learners' current L2 self by providing a competitive atmosphere in their online university classes as learners not only compete with others but also compete with their current self and acquire L2 self-enhancing techniques. Secondly, by encouraging learners to evaluate themselves and increase their expectations of success based on their current abilities, they will develop positive self-images as language users.

At the second level, pedagogical experts should run some teacher training courses for university instructors and make them aware of them to design their syllabus and online language teaching procedure based on language learners' ideal L2 self image and Ought to self-identities for learning the language. In addition, they should instruct university instructors to encourage their language learners to self-assess themselves as the course progresses to facilitate the development of the learners' current L2 self.

A more important point is that learners had a higher level of attitudes and intentions toward learning a foreign language online and perceived this context as more authentic than traditional language classes. Executive managers should invest more money and infrastructure into integrating online language training into as many classrooms as possible so that it can be utilized as a blended, flipped, or virtual exchange rather than offered as an option in an emergency situation.

At the third level, the study develops a new conceptual model that language scholars should validate, extend, or revise in other EFL or ESL contexts.

This exploratory study revealed the systematic relation between university learners' L2 motivational selves and their attitudes toward online language learning. To our knowledge, this research is just the starting point for discovering college students' L2MSS within their attitudes toward online language learning in higher education. Moreover, it is the first attempt to explore the authenticity gap at the territory level in the Iranian EFL context. This study delved into the current L2 self and digital self-authenticity as distinct constructs of L2MSS. Based on the context-specific nature of the psychological factors (Dörnyei & Ryan, 2015), especially motivation, further research is strongly recommended to measure university students' language learning behaviors directly. Further experimental investigations are also needed to replicate our conceptual framework with other proficiency levels and majors to validate it in other EFL and ESL contexts. Further, a qualitative study needs to examine the strengths as well as the weaknesses of the existing conceptual framework. Moreover, it may be interesting to explore the relationship between postgraduate learners' L2MSS and other technology acceptance models such as diffusion of infusion theory, theory of planned behavior (TPB), or unified theory of acceptance and use of technology (UTAUT).

Author contributions

ARR: Conceptualization, methodology, software, validation, formal analysis, resources, data curation, writing original draft, visualization, supervision, project administration. ZM: Investigation, writing, review, and editing, visualization, data collection

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Data availability
Can be requested from the corresponding author.

Declarations

Ethics approval and consent to participate
All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Iranian declaration and its later amendments or comparable ethical standards.

Informed consent
Informed consent was obtained from all individual participants included in the study.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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References

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Prentice Hall.
Al-Hoorie, A. H. (2018). The L2 motivational self system: A meta-analysis. *Studies in Second Language Learning and Teaching, 8*(4), 721–754. https://doi.org/10.14746/ssllt.2018.8.4.2
Ary, D., Jacobs, L. C., Razavieh, A., & Sorensen, C. (2006). *Introduction to research in education*. Wadsworth Publishing Company.
Atif, A., Richards, D., Busch, P., & Bilgin, A. (2015). Assuring graduate competency: A technology acceptance model for course guide tools. *Journal of Computing in Higher Education, 27*(2), 94–113. https://doi.org/10.1007/s12528-015-9095-4
Blommaert, J. (2010). *The sociolinguistics of globalization*. Cambridge University Press.
Chen, M.-P., Wang, L.-C., Zou, D., Lin, S.-Y., Xie, H., & Tsai, C.-C. (2020). Effects of captions and English proficiency on learning effectiveness, motivation and attitude in augmented-reality-enhanced theme-based contextualized EFL learning. *Computer Assisted Language Learning, 35*(3), 381–411. https://doi.org/10.1080/09588221.2019.1704787
Dai, H. M., Teo, T., & Rappa, N. A. (2022). The role of gender and employment status in MOOC learning: An exploratory study. *Journal of Computer Assisted Learning, 38*(5), 1360–1370. https://doi.org/10.1111/jcal.12681
Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319. https://doi.org/10.2307/249008
Deci, E. L., & Ryan, R. M. (1985). Conceptualizations of intrinsic motivation and self-determination. In E. L. Deci & R. M. Ryan (Eds.), *Intrinsic Motivation and Self-Determination in Human Behavior* (pp. 11–40). Springer US. https://doi.org/10.1007/978-1-4899-2271-7_2
Dörnyei, Z. (2009). Individual differences: Interplay of learner characteristics and learning environment. *Language Learning, 59*(1), 230–248. https://doi.org/10.1111/j.1467-9922.2009.00542.x
Dörnyei, Z., & Ryan, S. (2015). *The psychology of the language learner revisited*. Routledge.
Farid, A., & Lamb, M. (2020). English for Da'wah? L2 motivation in Indonesian pesantren schools. *System, 94*, 102310. https://doi.org/10.1016/j.system.2020.102310
Fathali, S., & Okada, T. (2018). Technology acceptance model in technology-enhanced OCLL contexts: A self-determination theory approach. *Australasian Journal of Educational Technology, 34*(4), 138–154. https://doi.org/10.14742/ajet.3629
Fishbein, M., & Ajzen, I. (1977). Belief, attitude, intention and behavior: An introduction to theory and research. *Contemporary Sociology, 6*(2), 244. https://doi.org/10.2307/2065853
Fornell, C., & Larcker, D. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research, 18*(4), 382–383. https://doi.org/10.2307/3151335
Gardner, R. C. (1985). *Social psychology and second language learning: The role of attitudes and motivation*. Hodder Arnold.
Granić, A. (2022). Publisher correction: Educational technology adoption: A systematic review. *Education and Information Technologies*. https://doi.org/10.1007/s10639-022-11053-0
Granić, A., & Marangunić, N. (2019). Technology acceptance model in educational context: A systematic literature review. *British Journal of Educational Technology, 50*(5), 2572–2593. https://doi.org/10.1111/bjet.12864
Hair, J., Jr., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. (2014). Partial least squares structural equation modeling (PLS-SEM). *European Business Review, 26*(2), 106–121. https://doi.org/10.1108/ebr-10-2013-0128
Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). Sage.

Henry, A. (2013). Digital games and ELT: Bridging the authenticity gap. In E. Ushioda (Ed.), *International perspectives on motivation: Language learning and professional challenges* (pp. 133–155). Berlin: Springer. https://doi.org/10.1057/9781137000873

Henry, A., & Cliffordson, C. (2017). The impact of out-of-school factors on motivation to learn English: Self-discrepancies, beliefs, and experiences of self-authenticity. *Applied Linguistics, 38*(5), 713–736. https://doi.org/10.1093/applin/amv060

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Higgins, E. T. (1987). Self-discrepancy: A theory relating self and affect. *Psychological Review, 94*(3), 319–340. https://doi.org/10.1037/0033-295x.94.3.319

Hsu, L. (2022). EFL learners' self-determination and acceptance of LMOOCs: The UTAUT model. *Computer Assisted Language Learning*. https://doi.org/10.1080/09588221.2021.1976210

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Hsu, H., & Lin, C. (2021). Extending the technology acceptance model of college learners' mobile-assisted language learning by incorporating psychological constructs. *British Journal of Educational Technology, 53*(2), 286–306. https://doi.org/10.1111/bjet.13165

Kangasvieri, T., & Leontjev, D. (2021). Current L2 self-concept of Finnish comprehensive school students: The role of grades, parents, peers, and society. *System, 100*, 102549. https://doi.org/10.1016/j.system.2021.102549

Lamb, M. (2017). The motivational dimension of language teaching. *Language Teaching, 50*(3), 301–346. https://doi.org/10.1017/s0261444817000088

Lamb, M., & Arisandy, F. E. (2019). The impact of online use of English on motivation to learn. *Computer Assisted Language Learning, 33*(1–2), 85–108. https://doi.org/10.1080/09588221.2018.1545670

MacKinnon, D. P. (2011). Integrating mediators and moderators in research design. *Research on Social Work Practice, 21*(6), 675–681. https://doi.org/10.1177/1049731511414148

Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologist, 41*(9), 954–969. https://doi.org/10.1037/0003-066x.41.9.954

Markus, H., & Ruvolo, A. (1989). Possible selves: Personalized representations of goals. In L. A. Pervin (Ed.), *Goal concepts in personality and social psychology* (pp. 211–241). Lawrence Erlbaum Associates.

Nkomo, L. M., Daniel, B. K., & Butson, R. J. (2021). Synthesis of student engagement with digital technologies: a systematic review of the literature. *International Journal of Educational Technology in Higher Education, 18*, 34. https://doi.org/10.1186/s41239-021-00270-1

Rahimi, A. R. (2023). The role of EFL learners' ideal L2 self, and authenticity gap on their intention to continue LMOOCs: Insights from an exploratory partial least approach. *Computer Assisted Language Learning*. https://doi.org/10.1080/09588221.2023.2202215

Rahimi, A. R., & Cheraghi, Z. (2022). Unifying EFL learners' online self-regulation and online motivational self-system in MOOCs: A structural equation modeling approach. *Journal of Computers in Education, 9*(4), 1–27. https://doi.org/10.1007/s40692-022-00245-9

Rahimi, A. R., & Tafazoli, D. (2022). The role of university teachers' 21st-century digital competence in their attitudes toward ICT integration in higher education: Extending the theory of planned behavior. *The JALT CALL Journal, 18*(2), 238–263. https://doi.org/10.29140/jaltcall.v18n2.632

Ringle, C. M., Sarstedt, M., & Straub, D. W. (2012). Editor's comments: A critical look at the use of PLS-SEM in "MIS quarterly." *MIS Quarterly, 36*(1), 3. https://doi.org/10.2307/41410402

Rosli, M. S., & Saleh, N. S. (2022). Technology enhanced learning acceptance among university students during Covid-19: Integrating the full spectrum of self-determination theory and self-efficacy into the technology acceptance model. *Current Psychology*. https://doi.org/10.1007/s12144-022-02996-1

Şahin, F., Doğan, E., Yıldız, G., & Okur, M. R. (2022). University students with special needs: Investigating factors influencing e-learning adoption. *Australasian Journal of Educational Technology, 38*, 146–162. https://doi.org/10.14742/ajet.7454

Sarstedt, M., Hair, J. F., Jr., Nitzl, C., Ringle, C. M., & Howard, M. C. (2020). Beyond a tandem analysis of SEM and PROCESS: Use of PLS-SEM for mediation analyses! *International Journal of Market Research, 62*(3), 288–299. https://doi.org/10.1177/1470785320915686

Sarstedt, M., Ringle, C. M., Smith, D., Reams, R., & Hair, J. F., Jr. (2014). Partial least squares structural equation modeling (PLS-SEM): A useful tool for family business researchers. *Journal of Family Business Strategy, 5*(1), 105–115. https://doi.org/10.1016/j.jfbs.2014.01.002

Shen, S., Mazgutova, D., & McCray, G. (2020). Exploring classroom willingness to communicate: The role of motivating future L2 selves. *International Journal of Educational Methodology, 6*(4), 729–743. https://doi.org/10.12973/ijem.6.4.729

Smith, S. A., Foster, M. E., Baffoe-Djan, J. B., Li, Z., & Yu, S. (2020). Unifying the current self, ideal self, attributions, self-authenticity, and intended effort: A partial replication study among Chinese university English learners. *System, 95*, 102377. https://doi.org/10.1016/j.system.2020.102377

Thorne, S. L., & Reinhardt, J. (2013). "Bridging activities", new media literacies, and advanced foreign language proficiency. *CALICO Journal, 25*(3), 558–572. https://doi.org/10.1558/cj.v25i3.558-572

Thorsen, C., Henry, A., & Cliffordson, C. (2017). The case of a missing person? The current L2 self and the L2 motivational self system. *International Journal of Bilingual Education and Bilingualism, 23*(5), 584–600. https://doi.org/10.1080/13670050.2017.1388356

Tseng, H., Yi, X., & Cunningham, B. (2022). Learning technology acceptance and continuance intention among business students: The mediating effects of confirmation, flow, and engagement. *Australasian Journal of Educational Technology, 38*, 62–78. https://doi.org/10.14742/ajet.7219

Ushioda, E. (2011). Language learning motivation, self and identity: Current theoretical perspectives. *Computer Assisted Language Learning, 24*(3), 199–210. https://doi.org/10.1080/09588221.2010.538701

Wang, X., Lu, A., Lin, T., Liu, S., Song, T., Huang, X., & Jiang, L. (2022). Perceived usefulness predicts second language learners' continuance intention toward language learning applications: A serial multiple mediation model of integrative motivation and flow. *Education and Information Technologies, 27*(4), 5033–5049. https://doi.org/10.1007/s10639-021-10822-7

Wang, C., Zhu, S., & Zhang, H. (2023). Computer-assisted English learning: Uncovering the relationship between motivation and self-regulation. *Journal of Computer Assisted Learning*. https://doi.org/10.1111/jcal.12846

Wang, W.-T., & Wang, C.-C. (2009). An empirical study of instructor adoption of web-based learning systems. *Computers & Education, 53*(3), 761–774. https://doi.org/10.1016/j.compedu.2009.02.021

Weiner, B. (2010). The development of an attribution-based theory of motivation: A history of ideas. *Educational Psychologist, 45*(1), 28–36. https://doi.org/10.1080/00461520903433596

Wei, X., & Xu, Q. (2021). Predictors of willingness to communicate in a second language (L2 WTC): Toward an integrated L2 WTC model from the socio-psychological perspective. *Foreign Language Annals, 55*(1), 258–282. https://doi.org/10.1111/flan.12595

Wetzels, M., Odekerken-Schröder, G., & van Oppen, C. (2009). Using PLS path modeling for assessing hierarchical construct models: Guidelines and empirical illustration. *MIS Quarterly, 33*(1), 177. https://doi.org/10.2307/20650284

Yousefi, M., & Mahmoodi, M. H. (2022). The L2 motivational self-system: A meta-analysis approach. *International Journal of Applied Linguistics, 32*(2), 274–294. https://doi.org/10.1111/ijal.12416

Yung, K.W.-H. (2019). Exploring the L2 selves of senior secondary students in English private tutoring in Hong Kong. *System, 80*, 120–133. https://doi.org/10.1016/j.system.2018.11.003

Zheng, C., Liang, J.-C., Li, M., & Tsai, C.-C. (2018). The relationship between English language learners' motivation and online self-regulation: A structural equation modelling approach. *System, 76*, 144–157. https://doi.org/10.1016/j.system.2018.05.003

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