Intention to Use Generative AI: Linking L2 Motivation and Competence

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Abstract: This study investigates whether learners' intention to use GenAI mediates the relationship between L2 motivation and L2 competence. SEM was applied to data from 221 undergraduate English majors. Results revealed that while intention to use GenAI was significantly predicted by English learning experience, it did not mediate the relationship between L2 motivation and competence. Learning experience positively influenced L2 competence, whereas the ought-to L2 self had a negative effect. The lack of mediation may reflect the early-stage adoption of GenAI in L2 learning, with its full effects yet to materialize. As GenAI becomes more integrated, future research should revisit its role using updated measures of competence.

Keywords: GenAI, L2MSS, intention to use GenAI, mediating effect

1. Introduction

The emergence of GenAI tools like ChatGPT is transforming L2 education by offering personalized learning experiences. In L2 classrooms, these tools act as on-demand tutors, providing real-time feedback on grammar, style, and vocabulary while simulating proficiency-tailored conversations. By addressing challenges such as limited individualized feedback in large classrooms, GenAI reduces teacher workload and promotes learner autonomy through self-regulated learning. However, its impact on key factors like motivation and competence remains underexplored. Motivation, a critical driver of language learning success, influences learners' adoption of GenAI (Zheng et al., 2024), and the L2MSS framework provides a valuable lens for understanding these dynamics. This study examines whether learners' intention to use GenAI mediates the relationship between motivation and L2 performance, exploring how personalized, interactive GenAI capabilities enhance engagement, self-efficacy, and skill development. Using SEM, it investigates the interplay of L2MSS, GenAI use, and performance to optimize the educational potential of this emerging technology (Fig 1).

2. Methods

A total of 282 undergraduate students majored in English language and literature gave their consent and participated in this study through convenient sampling. To avoid data contamination and filter out "careless" responses, we integrated some "lie-testing" items in the questionnaire following Jiang et al.'s (2021) methods. After applying the criteria suggested, 61 responses were removed from the sample, leaving 221 for further analysis. EFL motivation was measured through L2MSS questionnaire (Papi, 2010). This instrument is composed of three subdimensions, including Ideal L2 self (six items), Ought-to L2 self (six items) and English learning experience (six items). The subscale of intention to use GenAI consists of four items (Baig & Yadegaridehkordi, 2025). All the items in the two instruments were contextualized into English major learning to secure their surface validity. Participants' L2

competence was operationalized through their scores from Test for English Majors Band 4 (TEM-4), which is a standardized English proficiency test designed specifically for English major undergraduates in China. Administered nationwide, it assesses students' listening, reading, writing, and comprehensive language skills, serving as a benchmark to evaluate their English competence at an intermediate level.
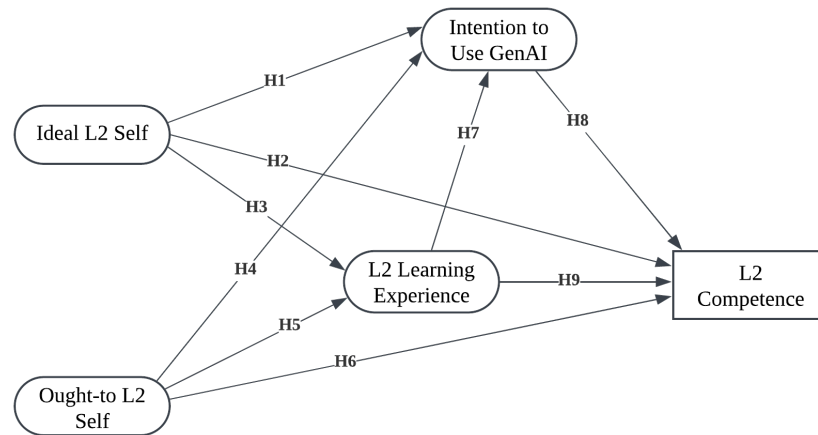

Figure 1. Proposed model

3. Results

Confirmatory factor analysis (CFA) was conducted to validate the construct validity of L2MSS and intention to use GenAI. Results of the initial CFA were as follows: df = 203, χ^2 = 547.531, χ^2/df= 2.697, RMSEA = 0.088, CFI = 0.853, TLI = 0.832, SRMR = 0.078, indicating that the model required modification. Based on the examination of the modification indices four items (i.e., IL2S4, OL2S1, OL2S3 and EXP5) were removed. Their poor performance may have stemmed from unclear or culturally misaligned language, as well as references to unfamiliar learning contexts, especially those involving GenAI-supported tasks. These findings underscore the importance of contextual and semantic appropriateness when adapting instruments for specific learner populations. After these adjustments, the CFA results improved and reached acceptable levels: df = 129, χ^2 = 251.115, χ^2/df= 1.947, RMSEA = 0.066, CFI = 0.932, TLI = 0.919, SRMR = 0.057. These refinements enhanced the measurement model fit and supported its construct validity.

SEM was then conducted to test the hypotheses proposed based on the research question. Model fit of the structural model were as follows: df = 143, χ^2 = 267.978, χ^2/df 1.874, RMSEA = 0.063, CFI = 0.931, TLI = 0.917, SRMR = 0.056, indicating that the structural model was acceptable. As shown in Figure 2, the SEM results revealed mixed support for the hypothesized relationships. The numbers displayed before and after the slashes represent standardized and unstandardized estimates of the path coefficients, respectively, with standardized error provided in parentheses. Significant paths (p < 0.05) are depicted using continuous lines, and nonsignificant paths in dotted lines. As indicated (Table 1), consistent with previous studies (e.g., Papi, 2010), Ideal L2 self and Ought-to L2 self has direct impact on L2 learning experience. However, no significant mediating effect of intention to use GenAI was witnessed on the relationship between L2 motivational constructs and L2 competence. The results indicated that intention to use GenAI was only predicted by L2 learning experience and L2 competence was positively predicted by L2 learning experience and negatively predicted by Ought-to L2 self.

4. Conclusion

This study examined whether intention to use GenAI mediates the relationship between L2 motivation and competence. While L2 learning experience significantly predicted both

intention to use GenAI and competence, intention did not mediate this relationship or directly affect competence. These findings likely reflect the early adoption of GenAI and the timing of TEM-4 scores. Still, the strong influence of learning experience highlights its role in fostering both GenAI adoption and proficiency. Future research should revisit this with updated measures and longer observation periods to better understand GenAI's evolving impact.
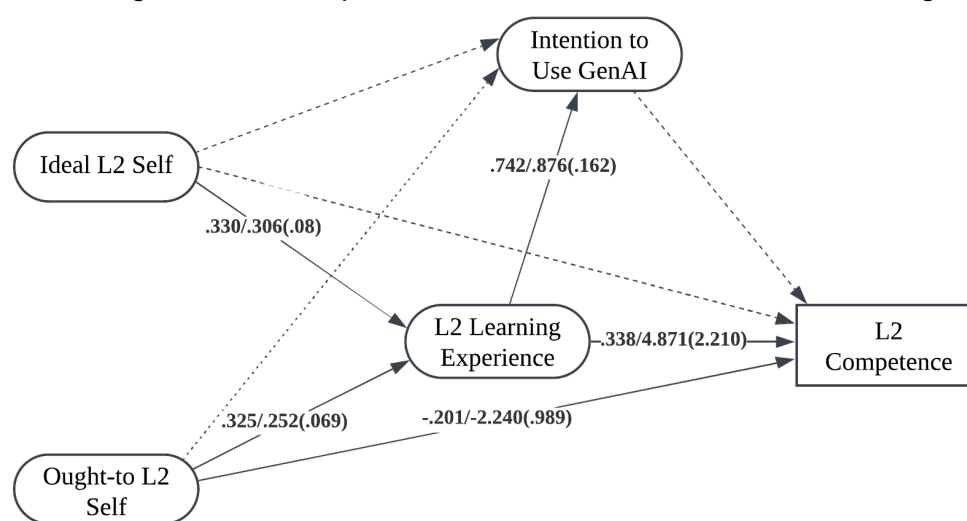

Figure 2. Structural model SEM results

Table 1. *SEM Results*

Hypothesis	Path	β-value	B-value	SE	t-value	Result
H1	IL2S→IUGAI	0.052	0.057	0.085	0.670	Not supported
H2	IL2S→L2C	0.086	1.143	1.087	1.051	Not supported
H3	IL2S→EXP	0.330	0.306	0.080	3.834[***]	Supported
H4	OL2S→IUGAI	-0.120	-0.110	0.075	-1.472	Not supported
H5	OL2S→EXP	0.325	0.252	0.069	3.652	Supported
H6	OL2S→L2C	-0.201	-2.240	0.989	-2.265[*]	Supported
H7	EXP→IUGAI	0.742	0.876	0.162	5.413[***]	Supported
H8	IUGAI→L2C	-0.114	-1.391	1.579	-0.881	Not supported
H9	EXP→L2C	0.338	4.871	2.210	2.204[*]	Supported

[*]$p < 0.05$, [***]$p < 0.001$

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