**International Journal of Mobile and Blended Learning**
Volume 18 • Issue 1 • January-December 2026

# Construction of a Dynamic Improvement Model of English Autonomous Learning Ability: Digital Literacy Oriented

Ji Dang
http://orcid.org/0009-0001-0009-0427
*Foreign Languages Teaching Department, Boda College of Jilin Normal University, China*
**Received:** January 22nd, 2026 | **Accepted:** April 15th, 2026

## ABSTRACT

This study constructs and verifies a dynamic model of improving English learners' autonomous learning ability under the guidance of digital literacy, aiming at revealing the internal mechanism of the two. Based on the perspective of social cognitive theory and complex dynamic system, through a 21-week follow-up survey of 398 college students, it is found that digital literacy has a significant positive predictive effect on autonomous learning ability ($\beta = 0.43$, $p < 0.001$), and dual mediation is realized through self-efficacy and metacognitive strategies, and there is a chain mediation path. The ability improvement of the high digital literacy group is significantly better than that of the low literacy group, and there is a critical threshold effect in the ability of "tool integration". Research shows that digital literacy is a key condition for the development of autonomous learning ability, and its value lies in reconstructing the learning ecology rather than the application of tools.

## KEYWORDS

Digital Literacy, Autonomous Learning Ability, English Learners, Dynamic Model, Intermediary Mechanism

## INTRODUCTION

Due to the deep integration of science and technology in the modern educational environment, English learning has broken the shackles of time and space of traditional classrooms (al Idrus, 2025; Nasution, 2024). Learners can independently plan, implement, and evaluate the entire learning process with the help of online dictionaries, language communication platforms, intelligent voice assistants, massive online courses, and generative artificial intelligence tools (Cordero et al., 2025; Salinas-Navarro et al., 2024). This change reshapes the path of language acquisition and puts forward new requirements for learners' competency structures (Anbanna, 2025). In non-native English-speaking environments, although learners are widely exposed to digital technologies, they may not be able to transform them into effective resources to support deep autonomous learning (Siddique, 2025). Autonomous learning ability has always been regarded as the core element of successful second language acquisition. Traditional research focuses mostly on psychological control mechanisms or metacognitive strategies and implies the assumption that learners are in a static and resource-limited environment (Marantika, 2021). This view was reasonable in an era when digital technology had

DOI: 10.4018/IJMBL.408165

not yet been popularized, but what learners are faced with today is not a binary choice of whether to learn autonomously but rather how to achieve high-quality autonomous learning in a complex and open digital environment overloaded by information.

In the context of language learning, digital literacy refers to whether learners can effectively use digital tools to obtain authentic language corpus, participate in cross-cultural interactions, build personal learning networks, and maintain cognitive autonomy in algorithmic recommendation and information cocoons (Pangrazio et al., 2020). Although many English learners frequently use mobile phones, social platforms, and learning apps, this frequency of use is not equal to the level of digital literacy. They often experience the dilemma of shallow browsing, passive consumption, or tool dependence and fail to transform digital resources into the driving force to promote deep learning (Idaryani & Fidyati, 2021). At present, digital literacy research is concentrated mostly in the fields of educational technology and information science, while research on autonomous learning ability is more common in the fields of second language acquisition and educational psychology. Although such research is enlightening, it is difficult to reveal the relationship between them, specifically regarding the underlying mechanism and development trends (Pinto et al., 2020; Reeve & Cheon, 2021; Tsai, 2021). More importantly, autonomous learning ability is not a static trait but a dynamic process of continuous adjustment, feedback, and evolution in specific situations (Borges, 2022). Digital literacy is not a static list of skills but a practical ability to be continuously built and reconstructed in actual tasks (Pegrum et al., 2022). Therefore, if the two are viewed separately or statically, it will be difficult to capture the internal logic of mutual inspiration and mutual shaping in the real learning process.

The significance of this paper is reflected in both theory and practice. Theoretically, this paper integrates social cognitive theory (SCT), self-regulated learning framework, and complex dynamic systems theory (CDST), constructs a dynamic improvement model of English autonomous learning ability driven by digital literacy, breaks through the linear research paradigm, clarifies the role of mediating and moderating variables, enriches the theoretical system of digital language learning, and provides a new perspective for understanding the coevolutionary relationship between them. In practice, through longitudinal empirical study, revealing the specific path and critical threshold of digital literacy affecting English autonomous learning and clarifying the practical value of each dimension can provide an empirical basis for colleges and universities to formulate digital literacy training programs, optimize English digital learning platforms, build adaptive learning environments, promote the transformation of learning from technology-driven to ability-empowered, and improve learners' autonomous learning ability and lifelong learning literacy.

## LITERATURE REVIEW

The research on autonomous learning ability and digital literacy shows a core shift from static cognition to dynamic process (Kharroubi & ElMediouni, 2024; Zhang, 2025). The research shows that technology integration, dynamic evaluation, and autonomous learning can effectively improve the effectiveness of foreign language teaching. Genç and Kırmızıbayrak (2024) systematically reviewed 62 papers and found that Web 2.0 tools can improve motivation and collaboration in English language learning, emphasizing that technology integration needs to be flexible and meticulous and providing inspiration for educational practice. Islam (2024) advocates replacing traditional assessment with dynamic assessment based on Vygotsky's sociocultural theory and promoting the development of oral English ability of Bangladeshi college students through intermediary interaction. Siravand and Zarei (2025) found that dynamic evaluation, especially the intensive mediated learning experience model, can effectively reduce English as a foreign language (EFL) learners' writing anxiety and improve their writing self-efficacy, which has important implications for teaching and evaluation practice. Jeong (2022) found that mobile-assisted language learning can effectively improve the learning performance, autonomy, and digital literacy of EFL college students and promote a sustainable, flexible, and positive English learning experience. Li et al. (2021) found that students' self-directed learning (SDL) ability