

GenAI-Mediated Informal Digital Learning of English

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Introduction

Understanding GenAI-Mediated Informal Digital Learning of English (IDLE)

Students in this era who were raised with technology engage and communicate in a digital world. This phenomenon has significantly changed how students learn. In technology-enhanced language learning (TELL), a growing body of literature investigates the impact of leisure-oriented digital activities on language learning, such as digital comic writing, YouTube watching, online gaming, etc. Those activities are categorized as autonomous language learning utilizing technology (Lai, 2019), recreational language acquisition (Chik & Ho, 2017), and informal digital learning of English (Dressman & Lee, 2021). As opportunities for English language learning expand out-of-school digital environments, students are becoming increasingly involved in Informal Digital Learning of English (IDLE). It is defined as autonomous



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English learning activities implemented in informal digital settings, driven by individual interests, and performed autonomously without teacher guidance (Lee & Lee, 2021). Benson (2011) proposes four dimensions for IDLE practice: formality, location, pedagogy, and locus of control – the degree to which students have control over their own learning, such as self-directed or other-directed.

Table 1 illustrates two alternative IDLE contexts (extracurricular and extramural) related to different learning forms.

Table 1. Benson's Framework of IDLE

	IDLE	
	Extracurricular	Extramural
Formality	Semi-structured, certification	Unstructured, no certification
Location	Out-of-class	Out-of-class
Pedagogy	Self-instructed	Naturalistic
Locus of control	Self-directed	Self-directed

The “digital” refers to digital devices such as smartphones, tablets, laptops, personal computers, etc. and other sources such as social media, mobile applications, computer software, etc. (Lee, 2019). Additionally, the ‘certification’ aspect within the ‘formality’ category pertains to any official and trustworthy document that verifies an individual's qualifications for a particular skill or competence (Lee & Drajati, 2019). There are distinctions between extracurricular and extramural in IDLE practice. In certain ways, extracurricular engagement is associated with educational situations that aim to facilitate formal learning. For instance, language learning at evening school is considered extracurricular because of the involvement of the teachers and its relevance to educational situations (Sylvén & Sundqvist, 2017). In contrast to extracurriculars, extramural learning involves students interacting with language outside the classroom walls. This learning process is predominantly initiated by the students themselves rather than teachers and is usually a voluntary decision made by the students (Sylvén & Sundqvist, 2017). So, extramural activities are voluntary and initiated by the students, while extracurricular activities are linked to formal educational settings.

Several studies about IDLE have been conducted worldwide, such as in Saudi Arabia (Mohammed & Ali, 2021), Kazakhstan (Zadorozhnyy & Lee, 2023), Sweden (Lee & Sylvén, 2021), China (Liu & Wang, 2024), South Korea (Lee & Dressman, 2018) and Indonesia (Lee & Drajadi, 2019). Those studies have highlighted the educational potential of IDLE by illustrating the informal digital activities that students engage in various contexts and emphasizing how these activities contribute to improving language proficiency and effective learning. A substantial body of research also highlights the linguistic and psychological advantages of involving language learners in IDLE activities. These benefits include but are not limited to improved self-assessed language proficiency (Zhang & Liu, 2022), increased vocabulary acquisition (Lee, 2019), enhanced intercultural competence (Liu, 2023), greater willingness to communicate (Lee & Drajadi, 2019; Lee & Lu, 2023; Liu, 2023), heightened self-efficacy (Zadorozhnyy & Lee, 2023), reduced language anxiety (Lee & Hsieh, 2019), and an increased sense of enjoyment (Lee & Lee, 2021). These findings affirm that IDLE has become a vital component of second language education, particularly in a digital era where learners can leverage greater and more accessible opportunities for self-directed, technology-assisted English learning (Lee & Dressman, 2018; Liu & Wang, 2024)

The potential of large language models (LLMs) as revolutionary and empowering language learning and assessment tools was significantly increased in late 2022 by the emergence of GenAI. In the field of foreign and second language (L2) education, large language models (LLMs) offer flexible and impactful tools that are transforming the processes of learning and teaching an additional language. This has driven researchers to reflect on the ways in which GenAI facilitates language learning, either inside or outside the classroom (Kohnke et al., 2023; Mizumoto & Eguchi, 2023). AI-enabled LLMs are believed to promote more effective personalized language learning by fostering authentic dialogues in the target language, delivering fast-tailored feedback, and more effectively recommending learning resources (Jeon & Lee, 2023; Kohnke et al., 2023). Researchers mostly consider GenAI implementation to be an IDLE practice. It is proven that previous quantitative research has identified similarities between individuals' perceptions of utilizing technology for English learning and college

students' use of GenAI as an IDLE practice (Liu & Ma, 2024). From the students' perspectives of GenAI, they depend on GenAI as a "teacher" for providing knowledge, consultation, and conversational partners (Liu et al., 2024; Ou et al., 2024). In contrast to traditional classrooms, which restrict EFL students' in-class practice and interaction opportunities due to class sizes and restricted class duration (Chen, 2024), GenAI can offer personalized feedback (Escalante et al., 2023) and serve as a conversational partner to enhance interaction frequency (Belda-Medina & Calvo-Ferrer, 2022). A wide variety of powerful GenAI technologies has emerged, which have the potential to enable students to participate in IDLE with a larger degree of creativity and adaptability. Thus, GenAI can potentially empower students as autonomous learners in the IDLE context because students can set their learning goals and access fast-tailored feedback, which they may not get during in-class learning because of the class size and limited class time.

Gen-AI Tools for IDLE

Several GenAI tools can be integrated into IDLE. This section explores several GenAI tools to support IDLE in English language learning.

Lingolette (<https://lingolette.com/>)

Lingolette is an application that uses an element of Generative AI. It is designed to develop students' reading proficiency through interactive features, such as personalized reading materials that offer various reading texts tailored to their proficiency levels and topic interests. Students can also use audio pronunciation to engage with the text more deeply and to facilitate reading comprehension. It also generates discussion from the reading text that the students read. It exhibits several strengths for IDLE, such as the accessibility across various devices to engage students with the reading text provided. The students can access the reading text anytime and anywhere to promote autonomous learning. The reading materials provided resonate with students' interests and English proficiency levels. In addition, it generates feedback on students' reading comprehension through quizzes and assessments. By integrating Lingolette into IDLE practice, students can understand their strengths and

weaknesses from the feedback provided. Thus, they can adjust their learning strategies accordingly.

Meanwhile, the text quality may vary, making some students find that the texts do not challenge or align with the learning goals. Moreover, the feedback generated by Lingolette might lack depth or fail to provide specific explanations for improvement, which could limit its usefulness for students aiming to improve their reading skills. Another drawback is that this tool might occasionally result in errors or inaccuracies of the content which could mislead learners in the learning process. Additionally, students who are not yet proficient in navigating digital tools might struggle to utilize the application's features. Lastly, Lingolette's dependence on internet connectivity may pose challenges for students in areas with limited or unreliable access, hindering its accessibility for all users.

Gliglish (<https://gliglish.com/>)

Gliglish is an AI-driven platform that enhances English speaking skills, primarily through conversational practice. It engages students in a realistic scenario by practising asking and responding to questions appropriately and maintaining meaningful dialogue in a conversation. Gliglish is designed to adapt to students' proficiency levels, offering grammar, vocabulary, and pronunciation feedback. The features provided by Gliglish make it a useful resource for learners to improve their speaking skills. In the IDLE context, this tool can make speaking practice more engaging and relevant because students can choose the topics provided based on their personal interests, which can foster their motivation and enthusiasm for learning.

Learners can also determine their own pace to practice as much or as little as needed based on their comfort and availability. In addition, learners' flexibility to practice speaking anytime and anywhere using Gliglish aligns well with the principles of IDLE, which prioritize autonomy and accessibility. This tool can help students reduce the fear of making mistakes in speaking, which is the common challenge students face in English speaking. Providing a non-judgmental environment encourages students to experiment with language and gain confidence in their speaking skills. Furthermore,

the instant feedback given by this tool can identify and address students' speaking errors to reinforce their learning.

However, Gliglish also has limitations, such as its lack of depth and unpredictability in conversations with real people. For instance, it might not fully replicate authentic dialogue's cultural nuances, emotional expressions, and contextual variances. Additionally, the feedback provided, though personalized, may not always capture specific issues unique to individual learners. To maximize the benefits of Gliglish, students can pair it with other speaking opportunities, such as practising with peers or participating in language exchange programs. Teachers can also guide students on incorporating Gliglish effectively into their learning routines, encouraging reflective practices such as recording their sessions, tracking progress, and setting specific speaking goals. This integration ensures that Gliglish complements other speaking practices, resulting in a more holistic language learning experience.

ChatGPT (<https://chatgpt.com/>)

ChatGPT is one of the Generative AI (GenAI) tools that support students' writing activities in the context of IDLE. It leverages advanced natural language processing capabilities to assist students in various stages of the writing process. For example, it can correct grammatical errors, enhance sentence structures, and provide explanations for revisions, helping students understand their mistakes and improve their writing. ChatGPT provides personalized feedback tailored to individual writing challenges, enabling students to address their weaknesses. In the IDLE context, ChatGPT can act as a peer reviewer, offering constructive criticism on students' drafts and helping them refine their ideas. Beyond corrections, learners can also use ChatGPT to brainstorm ideas, clarify concepts, and generate outlines for their writing tasks. This flexibility makes ChatGPT a valuable tool for fostering creativity and developing writing skills in an informal learning environment. However, a potential drawback of using ChatGPT is the risk of over-reliance, which could hinder the development of critical thinking and problem-solving skills in writing. To overcome this problem, students should be encouraged to use ChatGPT as a complementary resource rather than a replacement for their own efforts. For example, they can write independently before

consulting ChatGPT for improvements and explanations. Moreover, teachers can guide learners in using ChatGPT ethically and effectively by introducing reflective practices, such as comparing ChatGPT's suggestions with their original writing or discussing how AI tools contribute to their learning. This approach ensures that ChatGPT enhances writing quality and promotes the development of metacognitive skills in learning to write.

Students' Frequency of IDLE Activities

Research highlights inconsistencies in the impact of informal language learning frequency on students' English proficiency and vocabulary mastery. While some studies suggest a positive correlation between informal language learning activities and students' school grades in English (Sundqvist & Sylvén, 2014; Sundqvist & Wikström, 2015), others report contradictory findings (Lai et al., 2015; Lee, 2019). Some studies explained that spending significant time on IDLE activities may have varying impacts on students' English proficiency, depending on students' learning conditions (Sung et al., 2015, 2016). For example, students' excessive focus on digital devices used primarily for gaming and social media can lead to a lack of motivation to study. Lai et al. (2015) conducted a study using questionnaires, tests, and focus group interviews to examine students' out-of-class learning habits, learning outcomes, affective factors like confidence and enjoyment, and the elements influencing their choices for out-of-class English learning. The findings revealed that foreign language learners reported spending an average of 1-3 hours per week on self-initiated, self-directed, technology-based language learning. However, correlation analyses showed that the frequency of these learning activities was more strongly linked to affective factors than cognitive learning outcomes. This suggests that while increased engagement in out-of-class learning activities enhanced students' enjoyment and confidence in learning English, it did not necessarily translate into higher academic performance or improved English grades.

In conclusion, while informal digital language learning activities (IDLE) offer valuable opportunities to enhance learners' engagement and enjoyment, their impact on English proficiency and academic performance remains inconsistent. The

effectiveness of IDLE practices is influenced by various factors, including learners' focus, motivation, and the specific ways they engage with technology. Although these activities can foster confidence and positive attitudes toward language learning, they may not always lead to measurable improvements in cognitive outcomes such as vocabulary mastery or academic achievement. To maximize the benefits of IDLE, educators and learners should focus on creating balanced, purposeful interactions with digital tools that align with learning goals and provide opportunities for meaningful practice and application.

Challenges of GenAI-Mediated IDLE

Previous studies explained that EFL learners are positive about the potential of digital learning in an IDLE context (Nugroho & Triana, 2021). Most students select smartphones as their preferred device for performing IDLE activities (Yang & Chen, 2020). GenAI and English resources are readily accessible and available from anywhere in the virtual world where smartphones are used. Meanwhile, there are several challenges when integrating smartphones and GenAI into students' IDLE practice, including inadequate memory and battery life, difficulty updating mobile devices, small keypads or screens, and unreliable or unsafe internet access (Sabah, 2016). In the IDLE context, the frequency of engagement is of crucial importance. Regular engagement with the GenAI is crucial for skill enhancement and retention. Motivating students to engage with diverse materials, genres, and topics helps develop their language proficiency. Moreover, exposure to accents, dialects, and cultural viewpoints can improve students' linguistic proficiency and cultural competence (Peters, 2018).

Undeniably, intrinsic and extrinsic motivations are critical elements of the student's learning process. Students who are actively engaged are intrinsically motivated by their enjoyment, curiosity, and desire to accomplish personal goals. Nevertheless, getting learning support as an extrinsic motivation can be challenging. Learning support is any form of guidance from stakeholders (e.g. teachers, parents, and friends) to students to facilitate their learning beyond the formal context. Teacher assistance

significantly improves students' awareness and motivation to engage in the IDLE context (Hembrough & Jordan, 2020). For example, teachers can establish community programs, including informal groups encompassing students from diverse social backgrounds and English proficiency. It is intended to help students foster their self-confidence in social communities and practice their target language skills in a supportive environment.

The positive attitude and frequent use of GenAI in EFL learners' IDLE activities emphasize the fact that GenAI offers a greater number of opportunities for students to effectively learn English in the AI era, particularly for today's students who may be able to use technology more effortlessly and intuitively than their teachers (Rudolph et al., 2023). In this sense, while GenAI has created obstacles to academic integrity, assessment, and other educational components, it is crucial to provide students with more comprehensive instruction on effectively employing technology rather than disregarding its potential advantages.

Furthermore, not all students have equal access to certain devices or high-speed internet connections for IDLE activities. This digital divide problem can create inequality in learning opportunities, affecting learning outcomes. To address those issues, a system must help learners access the technology, especially those in remote areas. Another important issue is about the privacy and ethical use of GenAI. The students' interactions with GenAI involve their personal data, which leads to data security and ethical use in educational contexts. In addition, learners' dependency on AI is another ethical concern. Although GenAI can enhance learners' autonomy by providing fast feedback and responses, it can create overreliance on technology. This issue can diminish learners' ability to think critically. For instance, students might become accustomed to relying on AI for their writing, reducing opportunities to develop their thinking and evaluative skills.

AI-generated content can also lead to bias. Since GenAI models are trained on created datasets, they often reflect the biases in their data. This can generate learning materials or feedback that inadvertently reinforces stereotypes or excludes certain cultural or linguistic perspectives. Such biases may lead to unequal learning experiences,

particularly disadvantaging students from marginalized backgrounds. Addressing these biases requires careful curation to ensure fairness and inclusivity. Addressing these ethical challenges also requires a collective effort from teachers, developers, policymakers, and users to promote transparency, inclusivity, and accountability in using GenAI for IDLE practices. We can leverage GenAI's benefits by tackling these issues while minimizing its potential harms.

In conclusion, integrating GenAI into EFL learners' IDLE practices offers important opportunities for enhancing English language learning by providing accessible and engaging resources. Students' positive attitudes and frequent use of GenAI underscore its potential to support language acquisition in the digital era. However, the benefits must be balanced with thoughtful strategies to address challenges such as digital equity, data privacy, and learners' overreliance on AI. Teachers play a significant role in fostering an environment where students can use GenAI responsibly.

In addition, ethical concerns like bias in AI content and the potential exclusion of marginalized perspectives highlight the need for inclusivity in GenAI applications. Policymakers, developers, and educators must collaborate to ensure equitable access to technology and mitigate the risks associated with its use. By promoting transparency, accountability, and a focus on independent learning, teachers can harness the advantages of GenAI while minimizing its drawbacks. It is hoped that GenAI can be a transformative tool in shaping inclusive, innovative, and effective language learning practices for EFL learners.

Conclusion

The exploration of GenAI-mediated IDLE highlights the shift in language learning paradigms as learners use technology to foster autonomous and personalized learning experiences. IDLE allows learners to set goals, manage their pace, and explore topics of personal interest. The integration of GenAI into IDLE amplifies this potential by providing tools that support authentic interactions, personalized feedback, and enhanced engagement. These advancements underscore the evolving nature of

language learning, where autonomy and digital resources play important roles in shaping students' linguistic and cognitive growth.

Despite its benefits, the impact of IDLE on learners' academic performance remains inconsistent caused by factors such as learning strategies and learners' contextual conditions. While many studies stated IDLE's psychological and affective benefits, such as increased confidence, reduced anxiety, and achieved enjoyment, its direct contribution to measurable learning outcomes still varies. Thus, it needs a balanced approach, where GenAI tools complement structured teaching and learning process to foster students' learning outcomes.

Several challenges associated with GenAI-mediated IDLE, such as digital equity, ethical concerns, and the risk of overreliance on AI, call for thoughtful implementation strategies. Addressing these issues requires systemic efforts to ensure equitable access to technology, promote ethical data use, and encourage critical thinking alongside AI-assisted learning. Teachers and learners must navigate these challenges to optimize the benefits of GenAI, fostering environments where technology enhances, rather than replaces, independent problem-solving and critical thinking skills.

To sum up, GenAI-mediated IDLE represents a transformative opportunity for English language education in the digital era. Blending autonomous learning with advanced AI features enables learners to engage in meaningful, tailored learning experiences that align with their interests and needs. However, realizing its full potential necessitates careful consideration of its limitations and challenges. Teachers must design inclusive, ethical, and balanced teaching and learning ecosystems to ensure that GenAI is a powerful language-learning tool to foster students' learning outcomes.

References

- Belda-Medina, J., & Calvo-Ferrer, J. R. (2022). Using Chatbots as AI Conversational Partners in Language Learning. *Applied Sciences (Switzerland)*, 12(17). <https://doi.org/10.3390/app12178427>
- Benson, P. (2011). Language learning and teaching beyond the classroom: An introduction to the field. In *Beyond the Language Classroom*. https://doi.org/10.1057/9780230306790_2
- Chen, Y. chen. (2024). Effects of technology-enhanced language learning on reducing EFL learners' public speaking anxiety. *Computer Assisted Language Learning*, 37(4). <https://doi.org/10.1080/09588221.2022.2055083>
- Chik, A., & Ho, J. (2017). Learn a language for free: Recreational learning among adults. *System*, 69. <https://doi.org/10.1016/j.system.2017.07.017>
- Dressman, M., & Lee, J. S. (2021). IDLE in the Classroom: Learner-Driven Strategies for English Language Learning. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, 94(4). <https://doi.org/10.1080/00098655.2021.1929802>
- Escalante, J., Pack, A., & Barrett, A. (2023). AI-generated feedback on writing: insights into efficacy and ENL student preference. *International Journal of Educational Technology in Higher Education*, 20(1). <https://doi.org/10.1186/s41239-023-00425-2>
- Hembrough, T., & Jordan, J. (2020). Creating a digital writing classroom: A mixed methods study about a first-year composition tablet initiative. *International Journal of Instruction*, 13(2). <https://doi.org/10.29333/iji.2020.13239a>
- Jeon, J., & Lee, S. (2023). Large language models in education: A focus on the complementary relationship between human teachers and ChatGPT. *Education and Information Technologies*, 28(12). <https://doi.org/10.1007/s10639-023-11834-1>

- Kohnke, L., Moorhouse, B. L., & Zou, D. (2023). ChatGPT for Language Teaching and Learning. In *RELC Journal* (Vol. 54, Issue 2). <https://doi.org/10.1177/00336882231162868>
- Lai, C. (2019). Learning beliefs and autonomous language learning with technology beyond the classroom. *Language Awareness*, 28(4). <https://doi.org/10.1080/09658416.2019.1675679>
- Lai, C., Zhu, W., & Gong, G. (2015). Understanding the quality of out-of-class english learning. *TESOL Quarterly*, 49(2). <https://doi.org/10.1002/tesq.171>
- Lee, J. S. (2019). Quantity and diversity of informal digital learning of English. *Language Learning and Technology*, 23(1). <https://doi.org/10.125/44675>
- Lee, J. S., & Chen Hsieh, J. (2019). Affective variables and willingness to communicate of EFL learners in in-class, out-of-class, and digital contexts. *System*, 82. <https://doi.org/10.1016/j.system.2019.03.002>
- Lee, J. S., & Drajati, N. A. (2019). Affective variables and informal digital learning of English: Keys to willingness to communicate in a second language. *Australasian Journal of Educational Technology*, 35(5). <https://doi.org/10.14742/ajet.5177>
- Lee, J. S., & Dressman, M. (2018). When IDLE Hands Make an English Workshop: Informal Digital Learning of English and Language Proficiency. *TESOL Quarterly*, 52(2). <https://doi.org/10.1002/tesq.422>
- Lee, J. S., & Lee, K. (2021). The role of informal digital learning of English and L2 motivational self system in foreign language enjoyment. *British Journal of Educational Technology*, 52(1). <https://doi.org/10.1111/bjet.12955>
- Lee, J. S., & Lu, Y. (2023). L2 motivational self system and willingness to communicate in the classroom and extramural digital contexts. *Computer Assisted Language Learning*, 36(1–2). <https://doi.org/10.1080/09588221.2021.1901746>

- Lee, J. S., & Sylvé, L. K. (2021). The role of Informal Digital Learning of English in Korean and Swedish EFL learners' communication behaviour. *British Journal of Educational Technology*, 52(3). <https://doi.org/10.1111/bjet.13082>
- Liu, G. (2023). Interrogating critical digital literacies in the Chinese context: insights from an ethnographic case study. *Journal of Multilingual and Multicultural Development*. <https://doi.org/10.1080/01434632.2023.2241859>
- Liu, G. L., Darvin, R., & Ma, C. (2024). Exploring AI-mediated informal digital learning of English (AI-IDLE): a mixed-method investigation of Chinese EFL learners' AI adoption and experiences. *Computer Assisted Language Learning*. <https://doi.org/10.1080/09588221.2024.2310288>
- Liu, G. L., & Wang, Y. (2024). Modeling EFL teachers' intention to integrate informal digital learning of English (IDLE) into the classroom using the theory of planned behavior. *System*, 120. <https://doi.org/10.1016/j.system.2023.103193>
- Liu, G., & Ma, C. (2024). Measuring EFL learners' use of ChatGPT in informal digital learning of English based on the technology acceptance model. *Innovation in Language Learning and Teaching*, 18(2). <https://doi.org/10.1080/17501229.2023.2240316>
- Mizumoto, A., & Eguchi, M. (2023). Exploring the potential of using an AI language model for automated essay scoring. *Research Methods in Applied Linguistics*, 2(2). <https://doi.org/10.1016/j.rmal.2023.100050>
- Mohammed Saeed Mohammed, G., & Kaid Mohammed Ali, J. (2021). Informal Digital Learning of English Vocabulary: Saudi EFL Learners' Attitudes and Practices. *Arab World English Journal*, 7(1). <https://doi.org/10.24093/awej/call7.24>
- Nugroho, A., & Triana, Y. (2021). EFL Learners' Beliefs and Practices on Informal Digital Learning of English beyond Classroom. *IJEE (Indonesian Journal of English Education)*, 8(2). <https://doi.org/10.15408/ijee.v8i2.19843>

- Ou, A. W., Stöhr, C., & Malmström, H. (2024). Academic communication with AI-powered language tools in higher education: From a post-humanist perspective. *System*, 121. <https://doi.org/10.1016/j.system.2024.103225>
- Peters, E. (2018). The effect of out-of-class exposure to English language media on learners' vocabulary knowledge. *ITL - International Journal of Applied Linguistics*, 169(1). <https://doi.org/10.1075/itl.00010.pet>
- Rudolph, J., Tan, S., & Tan, S. (2023). ChatGPT: Bullshit spewer or the end of traditional assessments in higher education? *Journal of Applied Learning and Teaching*, 6(1). <https://doi.org/10.37074/jalt.2023.6.1.9>
- Sabah, N. M. (2016). Exploring students' awareness and perceptions: Influencing factors and individual differences driving m-learning adoption. *Computers in Human Behavior*, 65. <https://doi.org/10.1016/j.chb.2016.09.009>
- Sundqvist, P., & Sylvén, L. K. (2014). Language-related computer use: Focus on young L2 English learners in Sweden. *ReCALL*, 26(1). <https://doi.org/10.1017/S0958344013000232>
- Sundqvist, P., & Wikström, P. (2015). Out-of-school digital gameplay and in-school L2 English vocabulary outcomes. *System*, 51. <https://doi.org/10.1016/j.system.2015.04.001>
- Sung, Y. T., Chang, K. E., & Liu, T. C. (2016). The effects of integrating mobile devices with teaching and learning on students' learning performance: A meta-analysis and research synthesis. *Computers and Education*, 94. <https://doi.org/10.1016/j.compedu.2015.11.008>
- Sung, Y. T., Chang, K. E., & Yang, J. M. (2015). How effective are mobile devices for language learning? A meta-analysis. In *Educational Research Review* (Vol. 16). <https://doi.org/10.1016/j.edurev.2015.09.001>
- Sylvén, L. K., & Sundqvist, P. (2017). Computer-assisted language learning (CALL) in extracurricular/extramural contexts. In *CALICO Journal* (Vol. 34, Issue 1). <https://doi.org/10.1558/cj.31822>

- Yang, J. C., & Chen, S. Y. (2020). An investigation of game behavior in the context of digital game-based learning: An individual difference perspective. *Computers in Human Behavior*, 112. <https://doi.org/10.1016/j.chb.2020.106432>
- Zadorozhnyy, A., & Lee, J. S. (2023). Informal Digital Learning of English and willingness to communicate in a second language: self-efficacy beliefs as a mediator. *Computer Assisted Language Learning*. <https://doi.org/10.1080/09588221.2023.2215279>
- Zhang, Y., & Liu, G. (2022). Revisiting informal digital learning of English (IDLE): a structural equation modeling approach in a university EFL context. *Computer Assisted Language Learning*. <https://doi.org/10.1080/09588221.2022.2134424>

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