

Digital transformation strategies for learning loss recovery, improved resilience, and inclusivity in Cambodian higher education

By Bophan KHAN, Somphospheak HENG, and Phengheng KHORN

Introduction

The global education landscape experienced unprecedented disruption during the COVID-19 pandemic, forcing educational institutions worldwide to rapidly transition from traditional face-to-face instruction to emergency remote teaching modalities (Linnes et al., 2022; Mukred et al., 2024; Wang, 2024). This sudden shift exposed significant vulnerabilities in education systems across both developed and developing nations, with language education particularly affected due to its inherently interactive nature (Marzuki et al., 2024). As schools and universities closed their physical doors, the limitations of existing digital infrastructure became glaringly apparent, revealing deep disparities in access to technology and digital literacy skills among students and educators (Bhatta et al., 2024; Em, 2023). These challenges were especially pronounced in language teaching, where communicative competence requires meaningful interaction and immediate feedback that proved difficult to replicate in purely online environments (Heng et al., 2020; Ren & Samah, 2025). The pandemic thus served as both a crisis and a catalyst, accelerating digital transformation initiatives while simultaneously highlighting the urgent need for more resilient and inclusive educational approaches that could withstand future disruptions.

In Cambodia, a developing nation with pre-existing challenges in educational infrastructure, the pandemic's impact on English language teaching was particularly acute. Recognizing these challenges, the Ministry of Education, Youth, and Sport (MoEYS) swiftly implemented a series of national policies and frameworks to facilitate digital transformation in education (Ministry of Education, Youth and Sport, 2019, 2024). For Cambodian higher education institutions specifically, these policies represented both an opportunity and a challenge: while they provided much-needed direction for navigating the immediate crisis, they also required significant adaptation of teaching practices (Heng & Sol, 2021), particularly for English language instruction where interactive methodologies are essential for effective language acquisition (Chen, 2024). The Royal University of Phnom Penh and Svay Rieng University, like many institutions across Cambodia, found themselves at the forefront of implementing these national directives, grappling with issues of technological access, pedagogical adaptation, and ensuring equitable learning opportunities for all students in their English language programs.

This chapter interrogates how these national policy aspirations are enacted in the everyday practices of English language teaching at two public universities, the Royal University of Phnom Penh and Svay Rieng University, where blended learning is now integral to undergraduate English programs. Guided by three questions that mirror MoEYS priorities, the study asks: (1) How does

blended learning reshape English language teaching and learning in Cambodian higher education? (2) What barriers do teachers and students encounter in blended environments, and which strategies effectively mitigate them? (3) In what ways can blended learning advance inclusive and resilient education for marginalized learners, including those with special educational needs?

Employing a mixed-methods convergent parallel design (Creswell & Clark, 2011), this study collected both quantitative data on digital access patterns from 409 students and qualitative insights from teachers, students, and institutional leaders across two Cambodian public universities. By triangulating these diverse data sources, the research provides a comprehensive understanding of how blended learning can be optimized to support Cambodia's educational transformation goals while addressing persistent challenges of accessibility and equity. The findings presented in this chapter contribute actionable insights for policymakers, institutional leaders, and ELT practitioners seeking to build more resilient and inclusive language education systems that can withstand future disruptions while serving all learners effectively.

Digital transformation and EdTech policy landscape in Cambodia

Digital transformation has been a part of the national development agenda. The *Industrial Development Policy (IDP) 2015–2025* emphasizes technology-driven and knowledge-based modern industry in shifting the country's industrial structure from labor-intensive to skill-driven. The *Pentagonal Strategy (Phase I)* places digital transformation at the heart of Cambodia's development agenda for 2023–2028 as it aims to modernize public administration, improve service delivery, foster a digital economy, and build the digital skills needed for future growth. Along this line, the *Cambodia Digital Economy and Social Policy Framework 2021–2035* aims to transform the country into a digital economy over 15 years through a coordinated, comprehensive approach with five pillars: digital infrastructure, digital trust, digital citizens, digital government, and enabling digital businesses, with a strong focus on supporting SMEs and startups.

Cambodia's commitment to integrating Information and Communication Technology (ICT) in education began over two decades ago with the *Education for All: National Plan 2003–2015* which highlights the expansion of the use of ICT in teaching and learning, information management, and distance learning. The role of ICT in improving quality and access to education was further highlighted in the *Education Strategic Plan (ESP) 2004–2008*. The first standalone ICT policy in education sector is the *Policy and Strategies on Information and Communication Technology in Education in Cambodia* was published in 2004 with the aims to expand access to quality education and lifelong learning for all by leveraging ICT tools, and developing a workforce equipped with essential ICT skills to thrive in a knowledge-based, interconnected society. In particular, for higher education, MoEYS intended to promote the use of ICT in teaching and learning, research and

administration by creating a cyber campus consortium and facilitating connection to virtual universities in other countries. This initiative, however, only gained traction in 2022 with the establishment of Cambodian Cyber University Network based on Sub-Decree No. 16 ANKr.BK.

Subsequent policies developed such as the *Master Plan for Information and Communication Technology in Education: 2009–2013* and the new version of *Policy and Strategies on Information and Communication Technology in Education* (published in 2010 and 2018 respectively) continue to highlight the significance of the integration of ICT in education, not only for administrative and information management purposes, but also for learning and teaching, which aligns with 21st century skills. The more recent policies, including the *Cambodia's Education 2030 Roadmap*, the *EduTech Roadmap*, and the *Education Strategic Plan 2024–2028* (published in 2019, 2022 and 2024 respectively), emphasize the need to advance digital education through teacher capacity building, improve digital infrastructure and expand internet connectivity.

While there is clear evidence of substantial government commitment in the digital transformation in education, progress in implementation remains constrained by limited infrastructure, the need for better policy alignment, and education system's capacity to utilize technology (Ito et al., 2019; World Bank, 2024). For instance, despite various plans and policies highlight EdTech training for teachers, Cambodia does not currently have a digital standards or competency framework for educators, nor an established system to assess their digital skills (Bhatta et al., 2022). During the COVID-19 pandemic, Cambodian universities have faced challenges in quickly establishing quality distance learning programs, due to limited instructional design expertise, insufficient resources, lack of online education knowledge, and weak institutional capacity (Bhatta et al., 2024). Furthermore, the increasing prevalence of artificial intelligence (AI), coupled with the lack of a regulatory framework for AI governance in the field of education, presents significant ethical challenges related to privacy, data protection, and inequality (Tann, 2025).

Inclusive and resilient digital education

As technology continues to rapidly advance and reshape education, Selwyn et al. (2020) identified digital inclusion and exclusion as significant challenges, emphasizing the critical need to foster inclusion and equity within educational systems. Thus, digital learning environments should be developed to support the needs of diverse learners, including individuals with disabilities, linguistic minorities, students from economically disadvantaged backgrounds and those falling behind (UNESCO, 2020; OECD, 2023a). To illustrate, the different forms of e-learning and digital technologies can make quality education accessible to such students who might otherwise be excluded, for example, due to illnesses, accidents, and care responsibilities (UNESCO, 2011; OECD, 2023b). Furthermore, assistive technologies, such as UDL, e-learning technology, and voice-activated dictation software could be introduced to facilitate the learning of students with disabilities (Seale et al., 2008; Asselin, 2014).

Digital technologies also play an important part in building a resilient education system capable of anticipating, absorbing, adapting to, and recovering from shocks—while protecting and accelerating learning (Dülks et al., 2023; Kelcey et al., 2023). During Cambodia’s COVID-19 school closures, technology-based alternatives like online platforms, messaging apps, and TV/radio substituted for in-person instruction, enabling the continuation of learning, albeit unevenly (Bhatta et al., 2022). As Cambodian teachers and students transitioned to remote learning with limited preparedness and uneven access to digital infrastructure, evidence underscore that digital tools are most effective when they supplement, not replace, in-person teaching and are designed for low bandwidth, offline use, and equity of access. An inclusive approach to digital education can improve the overall learning experience, ensuring that even the most vulnerable can benefit, and strengthen the country’s preparedness for future shocks.

Theoretical foundations of asynchronous blended learning

Asynchronous blended learning in English language teaching (ELT) is underpinned by constructive, inclusive design, and equity-focus theories that illuminate both its potential and challenges in resource-constrained contexts. Rooted in constructivism, this mode positions learners as active agents who construct knowledge through reflection, interaction with materials, and peer engagement over time (Piaget, 1976; Vygotsky, 1978). In asynchronous ELT, students engage with readings, discussion forums, and multimedia at their own pace, allowing deeper cognitive processing, particularly beneficial for language learners needing time to comprehend and produce English language.

Equally critical is Universal Design for Learning (UDL), a framework advocating flexible instructional methods to support diverse learners (Meyer et al., 2016). UDL’s emphasis on multiple means of engagement, representation, and expression is especially relevant in asynchronous settings, where course design determines accessibility. For instance, providing alternative assessment options enables participation by students with disabilities or unstable internet, a key consideration in Cambodian higher education, where support for special educational needs remains limited.

However, the promise of flexibility is tempered by the digital divide. (Van Dijk, 2020) identified three layers of access, physical (devices, connectivity), skills (digital literacy), and usage (meaningful participation), that reveal systemic inequities. In low-bandwidth environments like rural Cambodia, students may technically access a Learning Management System (LMS) but struggle to download materials or participate in online call, resulting in passive or unequal participation.

These theories frame asynchronous blended learning not merely as a delivery mode, but as a sociotechnical practice shaped by pedagogy, design, and structural inequity. They inform this

study's analysis of how asynchronous blended learning in ELT classrooms can be optimized to enhance inclusivity, resilience, and quality in Cambodian higher education.

Blended English language learning

Blended learning represents a pedagogical approach that strategically integrates traditional face-to-face instruction with technology mediated learning activities to optimize language acquisition outcomes (Ait-Hroch et al., 2025). In the context of Cambodian higher education, where English proficiency is increasingly critical for academic and economic advancement, blended models have evolved from emergency remote teaching toward a more intentional, pedagogically sound implementations (Em, 2023; Nget et al., 2024). Graham (2006) defines blended learning as those that combine face-to-face instruction with computer-mediated instruction, emphasizing that effective blending requires more than simply adding technology to existing practices, it demands thoughtful integration that leverages the strength of each modality.

The theoretical underpinning of blended learning extends beyond general constructivist principles to address the specific demands of language acquisition. Language learning requires meaningful interaction, immediate feedback, and authentic communication opportunities, elements that present unique challenges in blended environments (Lu et al., 2022). Chen (2024) argues that effective blended ELT must incorporate CLT principles within digital frameworks, ensuring that technology serves as a conduit for authentic language use rather than merely delivering content. In asynchronous contexts particularly, this requires careful design of discussion forums, collaborative writing tasks, and multimedia resources that maintain the interactive essence of language learning while accommodating flexible scheduling.

Research demonstrates that well-designed blended approaches can enhance English language acquisition by providing multiple exposure pathways to linguistic input. Student benefits from the structured practice of classroom sessions combined with self-paced digital activities that allow repetition and reflection, particularly valuable for learning developing proficiency in a non-dominant language (Heng & Sol, 2021; Tusino et al., 2021). The asynchronous component enables learners to process linguistic input at their own pace, reducing anxiety associated with immediate oral production while still developing essential skills through carefully sequenced digital activities (Tabuchi et al., 2024).

Context-specific challenges in Cambodian Higher Education

Despite its potential, blended learning implementation in Cambodian universities faces significant context-specific challenges. First, the infrastructure limitations documented in national policy frameworks manifest concretely in classrooms where students from rural areas struggle with inconsistent internet connectivity, forcing them to rely on mobile data with limited bandwidth that cannot support video-based language practice (Em, 2023). Second, the infrastructure

challenge is particularly acute for English language learning (Em, 2023; Heng & Sol, 2021), which benefits significantly from audio-visual resources, and interactive communication. A third critical challenge is related to teacher preparedness. While MoEYS policies emphasize digital transformation, Cambodian English teachers frequently lack specialized training in both digital pedagogy and the specific requirements of blended language instruction (Tao, 2025). Marzuki et al., (2024) noted that teachers often default to using technology as a content delivery mechanism rather than leveraging it for interactive language practice, resulting in missed opportunities for developing communicative competence. This is compound by institutional constraints, as many Cambodian universities lack dedicated instructional design support for language faculty seeking to develop effective blended learning and resources (Nget et al., 2024).

Evidence-based mitigation strategies

Research from similar developing contexts offers valuable insights into effective mitigation strategies for these challenges. First, bandwidth-conscious design principles have proven essential in low-resource settings (Escueta et al., 2017). According to Escueta et al., (2017), bandwidth-conscious design enhances educational effectiveness by making digital content more accessible and reliable for students in low-resource settings, thereby reducing the digital divide. It improves engagement and learning outcomes by optimizing content for limited internet connectivity, ensuring consistent access regardless of infrastructure variability

Second, scaffolded digital literacy development must be integrated into language instruction itself. Rather than treating technology as a separate skill set, successful programs embedded digital navigation within language learning objectives, using the process of finding online resources, participating in discussion boards, and creating digital content as language practice opportunities (Chen, 2024). This approach simultaneously develops both language proficiency and digital competency.

Third, community-based support structures have demonstrated effectiveness in Cambodian context. Brandl & Wang (2024) document how leveraging device-to-device collaboration within peer learning networks enables students with superior connectivity to support peers with limited access, thereby mitigating infrastructure challenges. This approach not only optimizes resource sharing and network efficiency but also fosters collaborative learning environments, including language practice, by promoting equitable participation and resource distribution among students.

Research gaps and contextual implications

While global research on blended learning in ELT context continues to grow, significant gaps remain regarding its implementation in Cambodian higher education. Most existing studies focus on emergency remote teaching during the pandemic rather than intentional blended learning

design (Wang, 2024). Furthermore, limited research examines how blended approaches specifically address the developmental needs of Cambodian English learners at different proficiency levels or how they might incorporate local linguistic and cultural contexts to enhance relevance and engagement. The Cambodian context presents unique opportunities for innovation in blended ELT. Given the increasing penetration of smartphones in rural areas and the development of localized, user-friendly mobile learning platforms, mobile-first approaches to language learning have the potential to reduce barriers for novice digital users by making educational content more accessible and culturally relevant (Mukta, 2022).

Research objectives and methodology

Based on the conceptual framework, this study aims to:

- (1) Examine the impact of blended learning on English language teaching and learning in Cambodian higher education;
- (2) Identify the challenges faced by teachers and students in implementing blended English language instruction and explore effective mitigation strategies; and
- (3) Investigate how blended learning can promote inclusive and resilient educational practices, particularly in contexts marked by digital inequity and diverse learner needs.

To achieve these objectives, a convergent parallel mixed-methods design was employed, integrating quantitative and qualitative data within a qualitative case study framework (Creswell & Clark, 2011; Fraenkel et al., 2012). This design enabled concurrent collection and independent analysis of both datasets, followed by integration during interpretation to enhance validity through triangulation (Creswell & Clark, 2011). The approach aligns with best practices for studying complex educational phenomena in real-world settings (Fraenkel et al., 2012).

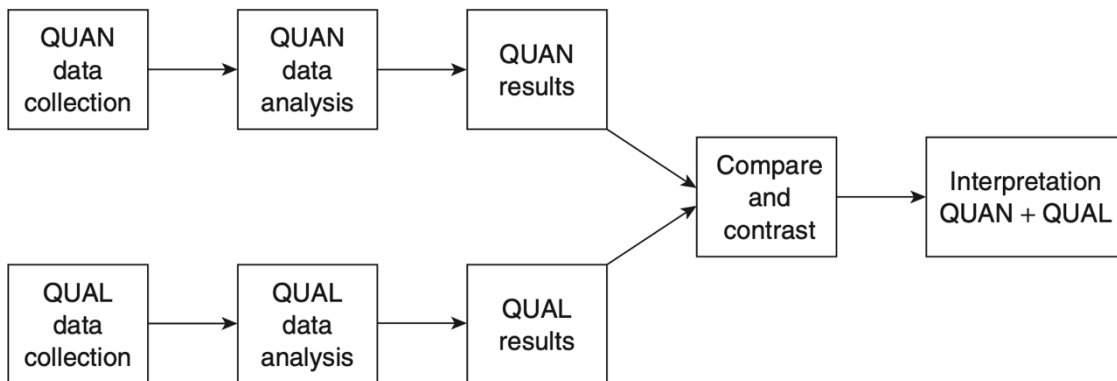


Figure 1 Convergence Model of Triangulation based on Creswell & Clark (2011, p.63)

The study focused on two public universities: the Royal University of Phnom Penh (RUPP) and Svay Rieng University (SRU). Data was collected through multiple sources:

- Quantitative data: A digital divide survey administered to 409 undergraduate students to assess disparities in device ownership, internet connectivity, and learning platform usage

(e.g., Canvas). Learning analytics, including assignment completion rates, quiz scores, login frequency, and module engagement, were also extracted from the LMS.

- Qualitative data: Semi-structured interviews with 2 instructors and 2 institutional leaders, and focus group discussions with students, explored pedagogical experiences, implementation challenges, and perceptions of inclusivity and resilience.

Participants were selected using purposive and convenience sampling. Instructors with prior experience in digital teaching were purposively recruited, while student respondents were conveniently sampled from participating classes. Institutional leaders were selected based on their roles in shaping digital education policy.

Quantitative data were analyzed using SPSS 22, employing descriptive statistics and independent samples *t*-tests to examine differences across urban and rural learners. Qualitative data were thematically analyzed using NVivo 12, following a five-stage process: transcription, open coding, theme development, refinement, and narrative construction.

Ethical approval was obtained from relevant institutional authorities. All participants provided informed consent, with options to withdraw at any stage. Data was anonymized using pseudonyms, stored securely, and reported in aggregate to ensure confidentiality. Special care was taken to protect vulnerable participants, including those with special educational needs, by offering accessible consent materials in Khmer and English.

By aligning methodological rigor with contextual sensitivity, this study offers a holistic understanding of blended English language learning in Cambodia, contributing empirical insights for policy, practice, and future research in digitally transforming higher education systems.

Findings

Impact of blended learning on English language teaching and learning

4.1.1 Pedagogical Shift Among Lecturers (Baseline + Endline Interview)

4.1.2 Student Engagement and Performance (Learning Analytics)

<i>Institution</i>	<i>Class</i>	<i>Tasks Completed (%)</i>	<i>On-Time Completion (%)</i>
RUPP	1	100.0	98.0
RUPP	2	94.78	83.0
RUPP	3	95.51	91.0
RUPP	4	85.60	87.0
RUPP	5	91.90	88.0
RUPP	6	94.08	84.0
SRU	7	99.04	98.0

Learning analytics from the LMS show consistently high participation across all classes, with task completion rates ranging from 85.6 to 100 percent and on-time submission between 83 and 98 percent. These figures suggest that students remained actively engaged with asynchronous tasks throughout the blended learning cycle. Interestingly, Svay Rieng University (SRU), a provincial institution, reported slightly higher completion and punctuality than the Royal University of Phnom Penh (RUPP), a university in the capital city of Cambodia. This pattern may reflect stronger motivation among SRU students or closer support within smaller number of students, even with fewer digital resources. Overall, the results indicate that well-structured asynchronous activities can promote sustained engagement and self-regulated learning in both urban and provincial contexts. High completion rates provide quantitative evidence that blended learning supports learner participation and performance while emphasizing the continued importance of improving digital access and literacy to ensure equitable opportunities nationwide.

Student perceptions of learning experience (FGD)

Independent learning

Student participants described how blended and asynchronous learning encouraged them to take responsibility for their own learning, search for solutions independently, and develop habits of self-study. For example, P13 noted: “I feel that online learning increases our personal responsibility and helps us manage ourselves better than before. I no longer waste as much time when studying online because I can set and manage my own schedule clearly. This also helps me organize other tasks and personal matters effectively.” Similarly, P2 shared, “I can say self-learning a lot ... and one more thing I have learned so far from asynchronous session is I try to search for the solution myself.

Flexibility and self-paced learning

Students value the combination of face-to-face and off-campus sessions, highlighting flexibility as a key benefit, particularly for those managing demanding schedules. As P19 noted, “Studying through Canvas offers more flexibility compared to scheduled classes since we aren't tied to specific times during the day or morning to complete assignments. We can work whenever we have free time, as long as we meet the deadlines.” In addition, those with transport challenges can also benefit as evident from P5: “For off campus I can save a lot of time, save a lot of money because you know I need to ride a motorbike to school when it comes to a physical class. It saves time because like you don't have to prepare yourself in morning, early morning like that.” In addition, they are able to learn at their own pace, which reduces academic pressure and allow for deeper engagement with reading and research. To illustrate, P18 mentioned, “When we attend school with friends, sometimes we struggle to keep up, but studying at home allows more time to focus and study thoroughly.”

Learner-learner and learner-instructor interaction

Students reported varied experiences regarding meaningful interaction during asynchronous sessions. Increased engagement was noted among individuals who identify as more reserved; for example, P14 reflected, "I am an introvert student, so even sometimes I know the answers to the questions that the teacher is asking, I don't want to answer. However, when studying online, I can write and answer the questions a lot." Students also appreciated the opportunity to learn from their peers. As P5 noted, "By reviewing the discussion function, I am able to consider diverse perspectives offered by classmates, which can be advantageous for future assignments or examinations."

While some students appreciated online discussion forums for enabling interaction, they noted that these were often less genuine or effective than face-to-face engagement. "And they just comment, oh, your post is good, and it means a lot, and it's perfect, or something like that. So at the end of the day, there is an interaction, but it's not genuine and it's not effective enough." Students reported experiencing decreased interaction from one another during asynchronous sessions. For example, P4 said, "I think that for physical class, I think it's better than off campus class because talk about the intimacy between the students and with the teachers, we are closer with each other. We can ask questions and not just only lecturers, but also the friends because we meet face to face."

Frequency of asynchronous meetings

The students were asked their opinion about the frequency of the asynchronous (off-campus) sessions and inclusion of blended learning in the future session. Across all groups, most students felt positive about the integration of asynchronous sessions in schedule. RUPP participants expressed that five off-campus (asynchronous) sessions out of fifteen per semester is the right amount that allows them to take advantage of flexibility while remaining motivated and regulated in learning. For instance, P13 indicated: "An asynchronous learning week would be like a more relaxed, going on with your pace kind of week. I feel like asynchronous week happening after two weeks of physical class is good and I don't think that there should be more asynchronous week because I feel like then people will slack off." P8 shared a similar experience saying "I think five is enough. If they [students] study in face-to-face class, they're not lazy and stuff like that. If they study at home, they're more carefree."

	Hour Spent	Internet Expense	Internet Speed	<i>M</i>	<i>SD</i>
Household income	.101*	.143**	.334***	2.230	1.351
Hours Spent	--	--	--	7.433	4.740
Internet Expense	--	--	--	3.150	1.872
Internet Speed	--	--	--	2.750	1.468

Note *** $p < .001$, ** $p < .01$, * $p < .05$. Pearson correlation is significant at the 0.01 level (2-tailed).

Challenges in blended learning and emerging mitigation strategies

Technological and infrastructural barriers (digital divide survey)

The study examined whether infrastructural conditions constrained blended learning. The survey included items on internet connection type, speed, and monthly cost as key indicators of access quality. As shown in *Table X*, household income was positively associated with internet speed ($r = .334, p < .001$) and also correlated with internet expense ($r = .143, p < .01$) and daily time online ($r = .101, p < .05$). This pattern suggests that the main technological barrier is not simply whether students can access online learning, but whether they can do so with sufficient bandwidth and stability to engage in video-based lessons, participate in online interaction, and submit coursework reliably. In resource-constrained households, slower connections and cost pressures may limit sustained participation, making blended learning experiences uneven even within the same course.

Toward inclusive and resilient English language education

Inequities in access and participation (digital divide and Interview)

Variable	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
Physical Access			1.725	373	.085	.650
RUPP	2.434	.645				
SRU	2.277	.676				
Skill Access			-2.505	373	.013	8.159
RUPP	6.682	6.775				
SRU	9.542	13.208				
Usage Access			1.100	373	.272	4.479
RUPP	4.801	4.637				
SRU	4.112	3.539				

The t-test results reveal significant differences in access to technology between RUPP and SRU, particularly in terms of skill access. While physical access shows a marginal difference with a mean score of 2.434 for RUPP and 2.277 for SRU ($t = 1.725$, $p = .085$), the disparity is not statistically significant at the conventional alpha level of .05. However, skill access demonstrates a substantial and statistically significant difference, with SRU students scoring significantly higher (mean = 9.542) compared to RUPP students (mean = 6.682; $t = -2.505$, $p = .013$). This suggests that SRU students possess greater proficiency or familiarity with technology. In contrast, usage access does not show a significant difference between the two universities ($t = 1.100$, $p = .272$), indicating similar levels of technology utilization despite the variations in skill access. The effect sizes further emphasize these findings, with a moderate effect size for physical access ($d = .650$) and a large effect size for skill access ($d = 8.159$), while usage access has a very large effect size ($d = 4.479$) despite the non-significant result.

References

- Ait-Hroch, A., Oudghiri, A., & Ibrahimi, A. (2025). Optimizing Language Learning in Blended Environments: Enhancing Engagement and Performance. In M. Khaldi, M. Kaddouri, & M. Erradi (Eds.), *Proceedings of the E-Learning and Smart Engineering Systems (ELSES 2024)* (Vol. 36, pp. 414–441). Atlantis Press SARL. https://doi.org/10.2991/978-2-38476-408-2_30
- Bhatta, S. D., Katwal, S., Pynnönen, L., Heng, S., & Salmi, J. (2024). *Reimagining Higher Education in Cambodia: Modernizing Governance for Improved Access and Relevance*. Washington, DC: World Bank. <https://doi.org/10.1596/41246>
- Brandl, R., & Wang, J.-H. (2024). *Collaborative Learning Networks for Enhanced Education: A Framework for Device-to-Device Collaboration*. Computer Science and Mathematics. <https://doi.org/10.20944/preprints202404.1715.v1>
- Chen, H. (2024). Innovative Approaches in English Language Teaching: Integrating Communicative Methods and Technology for Enhanced Proficiency. *Communications in Humanities Research*, 32(1), 214–220. <https://doi.org/10.54254/2753-7064/32/20240075>
- Creswell, J. W., & Clark, V. L. P. (2011). *Designing and Conducting Mixed Methods Research*. SAGE.
- Em, S. (2023). Cambodian Students' Online Learning Challenges during the COVID-19 Pandemic: A Vision for Future Measures. *International of Journal of Cambodian Education*, 1(1), 1–5.

- Escueta, M., Quan, V., Nickow, A. J., & Oreopoulos, P. (2017). *Education Technology: An Evidence-Based Review* (No. w23744; p. w23744). National Bureau of Economic Research. <https://doi.org/10.3386/w23744>
- Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research in education* (8th ed). McGraw-Hill Humanities/Social Sciences/Languages.
- Graham, C. R. (2006). Blended learning systems: Definition, current trends, and future directions. In *Handbook of blended learning: Global perspectives, local designs* (pp. 3–21).
- Heng, K., Kaing, S., Ros, V., & Sol, K. (Eds.). (2020). *English Language Teaching, Education, and Online Learning in Cambodia During COVID-19: Perspectives from Practitioners and Researchers*. Cambodian Education Forum.
<https://doi.org/10.62037/cef.book.2020.12.01>
- Heng, K., & Sol, K. (2021). Online learning during COVID-19: Key challenges and suggestions to enhance effectiveness. *Cambodian Journal of Educational Research*, 1(1), 3–16.
<https://doi.org/10.62037/cjer.2021.01.01.02>
- Linnes, C., Ronzoni, G., Agrusa, J., & Lema, J. (2022). Emergency Remote Education and Its Impact on Higher Education: A Temporary or Permanent Shift in Instruction? *Education Sciences*, 12(10), 721. <https://doi.org/10.3390/educsci12100721>
- Lu, Y., Miyake-Trapp, J., & Wong, K. M. (2022). Promoting Interaction for Language Learners in Blended Learning Environments Through OEIP: In W. M. El-Henawy & M. Del Mar Suárez (Eds.), *Advances in Educational Technologies and Instructional Design* (pp. 250–270). IGI Global. <https://doi.org/10.4018/978-1-6684-4205-0.ch012>

- Marzuki, Wulyani, A. N., Hidayati, Sata, M. R. M., & Rusdin, D. (2024). Overcoming challenges: Indonesian EFL teachers' strategies for using moodle in high schools. *Social Sciences & Humanities Open, 10*, 101175. <https://doi.org/10.1016/j.ssaho.2024.101175>
- Meyer, A., Rose, D., & Gordon, D. (2016). *Universal Design for Learning: Theory and Practice*. Center for Applied Special Technology. <http://castpublishing.org/books-media/udl-theory-and-practice/>
- Ministry of Education, Youth and Sport. (2019). *Education Strategic Plan 2019-2023*.
- Ministry of Education, Youth and Sport. (2024). *Education Strategic Plan 2024-2028*.
- Mukred, M., Mokhtar, U. A., Hawash, B., AlSalman, H., & Zohaib, M. (2024). The adoption and use of learning analytics tools to improve decision making in higher learning institutions: An extension of technology acceptance model. *Heliyon, 10*(4), e26315. <https://doi.org/10.1016/j.heliyon.2024.e26315>
- Mukta. (2022). *M-Learning in Rural Education: Challenges and Opportunities for Mobile Teaching*. <https://doi.org/10.5281/ZENODO.16798219>
- Nget, R., Huot, S., Kurniawan, G. F., Hok, C., & Heng, L. (2024). Considerations for the continuation of blended learning and teaching modes in English education within Cambodian public schools. *Cambodian Journal of Educational and Social Sciences (CJESS), 1*(2), 75–94. <https://doi.org/10.69496/cjess.v1i2.24>
- Piaget, J. (1976). *To Understand is to Invent: The Future of Education*. Penguin Books.
- Ren, Q., & Samah, N. A. (2025). Willingness and Influencing Factors in Online Chinese as a Second Language Learning: Insights from University Learners. *International Journal of Instruction, 18*(3), 371–390. <https://doi.org/10.29333/iji.2025.18320a>

- Tabuchi, K., Kobayashi, S., Fukuda, S. T., & Nakagawa, Y. (2024). A case study on reducing language anxiety and enhancing speaking skills through online conversation lessons. *Technology in Language Teaching & Learning*, 6(3), 1497. <https://doi.org/10.29140/tl.v6n3.1497>
- Tao, N. (2025). *English as a Foreign Language Teachers' Challenges of their Online Instruction during the Covid-19 Outbreak in Cambodia*.
- Tusino, T., Sukarni, S., Universitas Muhammadiyah Purworejo, Rokhayati, T., & Universitas Muhammadiyah Purworejo. (2021). Hybrid Synchronous and Asynchronous Language Learning in Writing Class: The Learners' Psychosocial Perspectives in Indonesia. *The New Educational Review*, 65(3), 190–199. <https://doi.org/10.15804/tner.21.65.3.15>
- Van Dijk, J. A. G. M. (2020). *The Digital Divide*. Polity Press.
- Vygotsky, L. S. (1978). *Mind in Society: Development of Higher Psychological Processes*. Harvard University Press. <https://doi.org/10.2307/j.ctvjf9vz4>
- Wang, Z. (2024). Educational Resilience Amidst COVID-19: Global Insights and Strategies. *Teachers' Work*, 21(1), 43–55. <https://doi.org/10.24135/teacherswork.v21i1.628>