



**Cambodian Journal of
Educational and Social Sciences
(CJESS)**



**Head of Advisory Board
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**Founder and Editor-in-Chief
*Sereyrath Em, PhD***

**Volume 3
Issue 1**

June, 2026

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Vol. 3 No. 1 (2026): The Cambodian Journal of Educational and Social Sciences (CJESS)

Editorial Team

The Cambodian Journal of Educational and Social Sciences (CJESS), Cambodian

Issue summary

This is the first issue of the Cambodian Journal of Educational and Social Sciences (CJESS) in 2026. This issue has nine articles, including one editorial article, three research articles, three narrative reviews, and two mini-reviews. All the articles are about educational fields, English language education, and social sciences. CJESS welcomes original research articles, review articles, and book reviews. CJESS publishes two issues a year, in June and December, and the authors are welcome to submit their articles year-round. However, authors must note that each article needs at least three months: one month for review, one month for revision, and one month for final decision by editors, from submission to publication. Authors need to register and follow the instructions to submit articles to CJESS. CJESS team has decided to stop accepting manuscripts through email from this issue onward.

Message from Head of Advisory Board



Dear colleagues and readers,

Greetings for the first issue of the Cambodian Journal of Educational and Social Sciences (CJESS) in 2026. As the Head of the Advisory Board, I am still very honored to support this new platform dedicated to advancing interdisciplinary research in education and social sciences.

CJESS aims to publish high-quality, peer-reviewed articles that address key challenges and promote sustainable development in Cambodia and beyond. Our goal is to establish a cooperative environment where ideas and advancements can be shared to positively impact society.

We appreciate your interest and support. We are excited for your input and participation.

Best regards,

Asst. Prof. Dina Pen, PhD

Head of Advisory Board

The Cambodian Journal of Educational and Social Sciences (CJESS)

Asst. Prof. Dina Pen is the head of the library and assistant dean at the Faculty of Social Science, Svay Rieng University. Besides teaching and research, he is a reviewer for well-known journals and publishers, i.e., SAGE, IGI Global, and Luzy Saber. He holds a PhD in Political Science, and his research covers women's political participation, academic staff motivation, and teaching and learning. He contributes to several educational projects, including EMMAAsia 2014, Eurasia Foundation, HR4Asia, CALOHEA, and HEIP.

Message from Founder and Editor-in-Chief



Through personal observation and empirical evidence, I acknowledge that research in Cambodia lags behind that of other countries, including its neighboring ones. As a result, it is very critical to encourage and support research and publication in our country. This is the first issue of 2026, and we have been working very hard to make this issue possible in the scholarly cycle. Thus, on behalf of all CJESS members, I would like to take this opportunity to thank the editorial team members, reviewers, authors, and all other contributors for their essential inputs in this issue.

Kind regards,

Sereyrath Em, PhD

Founder and Editor-in-Chief

The Cambodian Journal of Educational and Social Sciences (CJESS)

Dr. Sereyrath Em is a Cambodian government teacher of English with a higher education degree, a university lecturer, and an educational researcher with over 20 years of experience in teaching, instructing, and lecturing. In addition, he holds three master's degrees: an MA in TESOL, an MA in Education, and an MBA, and he holds two doctoral degrees: a PhD in Educational Science and a PhD in Educational Administration. Moreover, he is also working hard toward his third PhD in Cooperative Education at Suranaree University of Technology, Thailand. Moreover, he is also doing a Doctor of Laws majoring in International Law at Paññāsāstra University of Cambodia (PUC), Cambodia. Besides, he serves as an Editor at the Cambodian Journal of Educational Research (CJER) and is the Founder and Editor-in-Chief of the Cambodian Journal of Educational and Social Sciences (CJESS). Additionally, he is also an editor for Frontiers in Education and Psychology, where he has edited 40 articles and is editing some more articles. Likewise, he is also an editor for IGI Global, where he has edited four books so far. Noticeably, he also serves as a reviewer for many other well-known journals and publishers such as Cogent Education, MDPI, Taylor & Francis, Springer Nature, and Palgrave Macmillan, among other Scopus-indexed outlets. So far, he has published around 150 scholarly pieces in highly reputable journals and publishers.

The Mission and Vision of The Cambodian Journal of Educational and Social Sciences (CJESS)

1. Mission

To provide a dynamic platform for collecting, exchanging, and advancing knowledge in educational and social sciences through rigorous research, quality publication, fostering intellectual dialogue, and supporting evidence-based policymaking and sustainable development initiatives.

2. Vision

To be a leading academic and scientific journal, nationally and internationally accredited and recognized, that drives innovation and transformative change in educational and social sciences, contributing to sustainable development and societal progress in Cambodia and beyond.

Articles in Volume 3, Issue 1, June 2026

No.	Article title	Author
1.	CJESS at two: Strengthening foundations and looking forward	(Em & Pen, 2026)
2.	Student transformation in higher education: A grounded theory study of English-major students in Battambang	(Ngath & Hoy, 2026)
3.	Determinants of poor academic performance in English among Cambodian high school students: A survey study	(Yung & Ban, 2026)
4.	Motivational pathways from autonomy-supportive learning climates to science-learning self-efficacy among Cambodian high school students	(Ruos et al., 2026)
5.	Bridging empires, weaving civilisations: Cambodia as a nexus of Asian cultural diplomacy between India and China	(Huot, 2026)
6.	Teaching English for specific purposes in the age of automation within the Cambodian context	(Phin & Huot, 2026)
7.	History of instructional leadership in Cambodia: A literature review	(Veth et al., 2026)
8.	Implementing cooperative and work-integrated education in a medium-sized workplace: Policies, operational plans, and procedures	(Em, 2026)
9.	A short review of Khmer education history: Education during the Chenla period	(Chin, 2026)

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Editorial:

CJESS at two: Strengthening foundations and looking forward

Sereyrath Em

English Academic Essay (EAE), Takeo, Cambodia

Dina Pen

Svay Rieng University (SRU), Svay Rieng, Cambodia

1. Introduction

The Cambodian Journal of Educational and Social Sciences (CJESS) is now two years old and has published five issues, including the current one, totaling 38 scholarly pieces. Over the past two years, CJESS has become a reputable academic platform committed to advancing research and discourse in education and the social sciences in Cambodia and beyond.

Since its launch on March 08, 2024, CJESS has been striving to provide a platform for academics, practitioners, and policymakers to disseminate research findings relevant to Cambodia and other parts of the world. Besides, the journal has maintained a high standard of academic integrity by implementing a double-blind peer-review process (each manuscript must be reviewed by at least two expert reviewers, invited within and outside the board) and making research findings accessible to a wider audience. In a way, this is a manifestation of a larger objective aimed at enhancing research culture in Cambodia.

In its five journal issues to date, CJESS has been able to publish a diverse range of research focusing on some of the most important areas, such as educational leadership, teacher development, curriculum development, governance, sustainability, language studies, and social changes, among others. In addition, CJESS has also been able to nurture young academics, as well as established academics, in enhancing research capacity and individual growth.

2. Overview of published issues

To mark this achievement, it would be useful to analyze the development of CJESS through the various issues it has published. It should be noted that over the last two years or so, each issue of the journal has made a unique contribution to the journal's evolving scholarly persona with a consistent commitment to editorial quality and diversity of themes. These issues of CJESS have amply testified to the journal's dedication to promoting scholarship, fostering cross-disciplinary exchange, and addressing pressing educational and social issues in Cambodia and beyond.

Table 1. First issue in 2024

No.	Article title	Author
1.	Groundbreaking issue of the Cambodian Journal of Educational and Social Sciences (CJESS)	(Em, 2024)

2.	Implementing a school-based mentoring program at a secondary resource school in Takeo province, Cambodia	(Yoeurng, 2024)
3.	Factors causing students' challenges in learning English speaking skills: A review of empirical works	(Ork et al., 2024)
4.	Using different techniques and strategies to improve English reading skills: A review of literature	(Yung et al., 2024)
5.	Exploring the benefits of teacher involvement in guiding high school students' orientation toward personal and educational growth	(Huot, Hok, et al., 2024)
6.	Enhancing English language learning in Cambodia: Exploring scaffolding strategies in mixed-ability classes	(Chea & Kuon, 2024)
7.	Book review: Cooperative and work-integrated education: History, present, and future issues in Asia	(Em & Phann, 2024)

Table 1 presents the content of the first 2024 issue of CJESS. As presented, the issue has seven articles, all of which reflect the journal's founding vision. Among the prominent issues in education in Cambodia are mentoring, English language teaching and learning issues, teaching strategies, student development, and scaffolding in heterogeneous classrooms. Lastly, the journal has a reflective book review on cooperative and work-integrated education in Asia. These articles reflect the journal's early focus on promoting research and scholarly dialogue in the country and region.

Table 2. Second issue in 2024

No.	Article title	Author
1.	Enhancing the visibility and impact of Cambodian scientific journals through Open Journal System (OJS): An editorial review	(Em & Pen, 2024)
2.	A correlational study on teacher-student relationships and students' engagement in EFL classes	(Hendrian & Kurniawati, 2024)
3.	Students' perception of the impact of AI generative tools in learning the English language	(On et al., 2024)
4.	The political evolutionary process of the Cambodian People's Party from 2008 to 2017: A critical review	(Dy et al., 2024)
5.	Review the advantages and disadvantages of the Funan Techo Canal project in Cambodia.	(Pen et al., 2024)
6.	Education in Cambodia during the prehistoric period: Education started from instinctive senses to creative senses	(Huot, Kuon, et al., 2024)

7.	Considerations for the continuation of blended learning and teaching modes in English education within Cambodian public schools	(Nget et al., 2024)
8.	Book review: Education in Cambodia: From Year Zero towards international standards (Education in the Asia-Pacific region: Issues, concerns and prospects, book 64)	(Pang & Nol, 2024)

Table 2 shows the content of the second issue of 2024 published by CJESS. The issue has collected eight scholarly articles to expand its scope in multiple disciplines such as education, politics, and development studies. The articles discuss various topics such as the visibility of the journal through Open Journal Systems, teacher-student relationships in English as a foreign language context, the application of artificial intelligence in language acquisition, political situations in Cambodia, infrastructure debates, and historical analyses of education. Discussions on blended learning and a critical book review are additional features of this issue. These articles collectively demonstrate CJESS's expanding scope in facilitating critical discourse and multiple perspectives on various topics within Cambodia and other countries.

Table 3. First issue in 2025

No.	Article title	Author
1.	Scopus-indexed publications: Insights into the sole Cambodian first author in the past and ASEAN journals	(Em & Pen, 2025)
2.	Exploring multiliteracies in the digital era: A framework for 21st-century learning	(Huot, Loch, et al., 2025)
3.	L2 speaking confidence of Indonesian senior high school learners: Influence on willingness to communicate	(Fernando & Subekti, 2025)
4.	Examining the relationship between instructional behaviors and critical thinking dispositions: A correlational study of general education	(Ruos & Em, 2025)
5.	Students' perceptions of intrinsic and extrinsic motivation on academic performance: A survey study at a Cambodian provincial university	(Phal et al., 2025)
6.	Use of digital tools in learning listening: A survey of EFL students at the National University of Battambang, Cambodia	(Chhong et al., 2025)
7.	Exploring the dynamics of politics: An archival examination of definitions, traditions, and cultural influences	(Huot, Chea, et al., 2025)
8.	Book review: The practice of English as a medium of instruction (EMI) around the world	(Chin et al., 2025)

Table 3 presents the content of the first issue of CJESS in 2025. It should be noted that the first issue comprises eight articles that demonstrate the journal's growing depth in terms of scholarship and coverage of the region. The articles cover a range of themes, including research productivity in ASEAN journals, multiliteracies in the digital age, L2 speaking confidence, instructional practices and critical thinking, motivation among students, and the use of technology in EFL studies. It should also be noted that the issue presents a conceptual analysis of political dynamics and a book review related to English as a medium of instruction.

Table 4. Second issue in 2025

No.	Article title	Author
1.	Exploring experimental research: Methodologies, designs, and applications across disciplines	(Em, 2025)
2.	The effects of social media on violence and aggressive behavior among adolescents: A case study of the capital city and a province	(Chien et al., 2025)
3.	Disability inclusive education in Cambodia: Current barriers and opportunities	(Byrne, 2025)
4.	Introductory note on the intended meaning of public accountability and the influence of information and communication technologies	(Prang, 2025)
5.	ICT adoption in supporting teachers' instruction in higher education: A review of benefits and challenges	(Cheng & Khy, 2025)
6.	The integration of English language teaching with environmental sustainability: A comprehensive review of pedagogical strategies and global impacts	(Huot & Em, 2025)

Table 4 shows an overview of the second issue of CJESS in 2025. The issue has six articles that emphasize its interdisciplinary nature. The articles discuss various topics, such as research methodology in experiments, violence among young people and social media use, inclusive education for people with disabilities, accountability within society, information and communication technology, technology use in higher learning institutions, and incorporating English language teaching into environmental sustainability. The articles emphasize CJESS's dedication to promoting research that applies to society and is relevant to Cambodia and other academic communities.

Table 5. First issue in 2026

No.	Article title	Author
1.	CJESS at two: Strengthening foundations and looking forward	(Em & Pen, 2026)
2.	Student transformation in higher education: A grounded theory study of English-major students in Battambang	(Ngath & Hoy, 2026)

3.	Determinants of poor academic performance in English among Cambodian high school students: A survey study	(Yung & Ban, 2026)
4.	Motivational pathways from autonomy-supportive learning climates to science-learning self-efficacy among Cambodian high school students	(Ruos et al., 2026)
5.	Bridging empires, weaving civilisations: Cambodia as a nexus of Asian cultural diplomacy between India and China	(Huot, 2026)
6.	Teaching English for specific purposes in the age of automation within the Cambodian context	(Phin & Huot, 2026)
7.	History of instructional leadership in Cambodia: A literature review	(Veth et al., 2026)
8.	Implementing cooperative and work-integrated education in a medium-sized workplace: Policies, operational plans, and procedures	(Em, 2026)
9.	A short review of Khmer education history: Education during the Chenla period	(Chin, 2026)

Table 5 presents the contents of Volume 3, Number 1 (2026) of the Cambodian Journal of Educational and Social Sciences (CJESS). The issue consists of nine papers addressing different themes related to education, social sciences, cultural issues, learning in the workplace environment, history of education in Cambodia. Some of the subjects covered in the publications are student transformation in tertiary education, influences on English learning success, self-efficacy in science learning, cultural diplomacy, English for specific purposes, instructional leadership, and cooperative and work-based learning.

3. Contributions to knowledge and practice

The significance of CJESS is not merely based on the number of publications. It is equally based on the commitment to applied knowledge. There are several studies that have already been published. These studies are of relevance to educators, leaders, and policymakers. In a way, the journal continues to bridge the gap between theory and practice by advocating research that is socially relevant and analytically sound.

Besides, the journal is equally important for the professionalization of the research culture in Cambodia. It contributes to the advancement of the standard of research through peer review and the dissemination of knowledge through open access. These are critical areas in a fast-changing academic arena. As such, the journal needs to remain globally engaged and nationally relevant.

4. Challenges and opportunities ahead

The achievement of the two-year milestone is a call for celebration and academic reflection. As with any emerging journals, CJESS continues to face challenges, such as the enhancement of international visibility, the strengthening of indexing and citation impact, the enhancement

of reviewers' networks, and the maintenance of a consistent publication schedule. However, these challenges are growth opportunities.

Looking forward, CJESS can further strengthen its role by:

- Expanding regional and international scholarly collaboration with more authors;
- Encouraging methodological rigor and interdisciplinary research;
- Promoting ethical scholarship and research transparency;
- Enhancing digital existence and global accessibility.

5. A collective achievement

CJESS has, over the last two years, shown a commitment to the power of change through scholarly studies among its editorial board members, scholars who have written for the journal, and its readership. As the journal embarks on its third year of publication, it remains steadfast in its commitment to advancing scholarship, fostering scholarly dialogue, and contributing significantly to educational and social development in Cambodia and beyond. With five issues under its belt, including the one at hand, CJESS stands not only as a testament to scholarly advancement but also as a commitment to growth in the future.

Acknowledgments

We gratefully acknowledge the valuable academic inputs and constructive feedback received throughout the development of this editorial from our editorial team.

Conflict of interest

We declare no conflict of interest related to the conduct of this editorial.

Declaration of AI usage

We used Grammarly to polish the language grammatically in some parts of this editorial. However, we declared that the content of the editorial is not at all generated.

References

- Byrne, J. (2025). Disability inclusive education in Cambodia: Current barriers and opportunities. *Cambodian Journal of Educational and Social Sciences*, 2(2), 35–51. <https://doi.org/10.69496/cjess.v2i2.86>
- Chea, V., & Kuon, S. (2024). Enhancing English language learning in Cambodia: Exploring scaffolding strategies in mixed-ability classes. *Cambodian Journal of Educational and Social Sciences*, 1(1), 89–103. <https://doi.org/10.69496/cjess.v1i1.18>
- Cheng, C., & Khy, P. (2025). ICT adoption in supporting teachers' instruction in higher education: A review of benefits and challenges. *Cambodian Journal of Educational and Social Sciences*, 2(2), 64–82. <https://doi.org/10.69496/cjess.v2i2.104>
- Chhong, N., Nhean, V., Phal, P., Leng, D., & Sam, R. (2025). Use of digital tools in learning listening: A survey of EFL students at the National University of Battambang, Cambodia. *Cambodian Journal of Educational and Social Sciences*, 2(1), 91–102. <https://doi.org/10.69496/cjess.v2i1.30>

- Chien, S., Liu, K. L., & Poch, B. (2025). The effects of social media on violence and aggressive behavior among adolescents: A case study of the capital city and a province. *Cambodian Journal of Educational and Social Sciences*, 2(2), 9–34. <https://doi.org/10.69496/cjess.v2i2.97>
- Chin, P. (2026). A short review of Khmer education history: Education during the Chenla period. *Cambodian Journal of Educational and Social Sciences*, 3(1), 120–126. <https://doi.org/10.69496/cjess.v3i1.160>
- Chin, P., Serey, M., Win, E. T., & Va, T. (2025). Book review: The practice of English as a medium of instruction (EMI) around the world. *Cambodian Journal of Educational and Social Sciences*, 2(1), 125–131. <https://doi.org/10.69496/cjess.v2i1.95>
- Dy, P., Sok, T., Yang, P., Pen, D., & Nut, V. (2024). The political evolutionary process of the Cambodian People's Party from 2008 to 2017: A critical review. *Cambodian Journal of Educational and Social Sciences*, 1(2), 112–126. <https://doi.org/10.69496/cjess.v1i2.41>
- Em, S. (2024). Groundbreaking issue of the Cambodian Journal of Educational and Social Sciences (CJESS). *Cambodian Journal of Educational and Social Sciences*, 1(1), 1–25. <https://doi.org/10.69496/cjess.v1i1.4>
- Em, S. (2025). Exploring experimental research: Methodologies, designs, and applications across disciplines. *Cambodian Journal of Educational and Social Sciences*, 2(2), 1–8. <https://doi.org/10.69496/cjess.v2i2.78>
- Em, S. (2026). Implementing cooperative and work-integrated education in a medium-sized workplace: Policies, operational plans, and procedures. *Cambodian Journal of Educational and Social Sciences (CJESS)*, 3(1), 113–119. <https://doi.org/10.69496/cjess.v3i1.37>
- Em, S., & Pen, D. (2024). Enhancing the visibility and impact of Cambodian scientific journals through Open Journal System (OJS): An editorial review. *Cambodian Journal of Educational and Social Sciences*, 1(2), 1–10. <https://doi.org/10.69496/cjess.v1i2.35>
- Em, S., & Pen, D. (2025). Scopus-indexed publications: Insights into the sole Cambodian first author in the past and ASEAN journals. *Cambodian Journal of Educational and Social Sciences*, 2(1), 1–6. <https://doi.org/10.69496/cjess.v2i1.48>
- Em, S., & Pen, D. (2026). CJESS at two: Strengthening foundations and looking forward. *Cambodian Journal of Educational and Social Sciences*, 3(1), 113–119. <https://doi.org/10.69496/cjess.v3i1.156>
- Em, S., & Phann, S. (2024). Book review: Cooperative and work-integrated education: History, present, and future issues in Asia. *Cambodian Journal of Educational and Social Sciences*, 1(1), 104–110. <https://doi.org/10.69496/cjess.v1i1.17>
- Fernando, W., & Subekti, A. S. (2025). L2 speaking confidence of Indonesian senior high school learners: Influence on willingness to communicate. *Cambodian Journal of Educational and Social Sciences*, 2(1), 28–44. <https://doi.org/10.69496/cjess.v2i1.44>
- Hendrian, N., & Kurniawati, L. A. (2024). A correlational study on teacher-student relationships and students' engagement in EFL classes. *Cambodian Journal of Educational and Social Sciences*, 1(2), 53–74. <https://doi.org/10.69496/cjess.v1i2.31>
- Huot, S. (2026). Bridging empires, weaving civilizations: Cambodia as a nexus of Asian cultural diplomacy between India and China. *Cambodian Journal of Educational and Social Sciences*, 3(1), 68–80. <https://doi.org/10.69496/cjess.v3i1.135>
- Huot, S., & Em, S. (2025). The integration of English language teaching with environmental sustainability: A comprehensive review of pedagogical strategies and global impacts. *Cambodian Journal of Educational and Social Sciences*, 2(2), 83–95. <https://doi.org/10.69496/cjess.v2i2.68>

- Huot, S., Chea, C., Non, R., Pok, P., & Phengly, S. (2025). Exploring the dynamics of politics: An archival examination of definitions, traditions, and cultural influences. *Cambodian Journal of Educational and Social Sciences*, 2(1), 103–124. <https://doi.org/10.69496/cjess.v2i1.43>
- Huot, S., Hok, C., Kumar, P., & Heng, L. (2024). Exploring the benefits of teacher involvement in guiding high school students' orientation toward personal and educational growth. *Cambodian Journal of Educational and Social Sciences*, 1(1), 49–66. <https://doi.org/10.69496/cjess.v1i1.9>
- Huot, S., Kuon, S., Chin, P., & Loch, S. (2024). Education in Cambodia during the prehistoric period: Education started from instinctive senses to creative senses. *Cambodian Journal of Educational and Social Sciences*, 1(2), 23–41. <https://doi.org/10.69496/cjess.v1i2.22>
- Huot, S., Loch, S., Nget, R., & Em, S. (2025). Exploring multiliteracies in the digital era: A framework for 21st-century learning. *Cambodian Journal of Educational and Social Sciences*, 2(1), 7–27. <https://doi.org/10.69496/cjess.v2i1.50>
- Ngath, S., & Hoy, S. (2026). Student transformation in higher education: A grounded theory study of English-major students in Battambang. *Cambodian Journal of Educational and Social Sciences*, 3(1), 10–31. <https://doi.org/10.69496/cjess.v3i1.115>
- 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*, 1(2), 75–94. <https://doi.org/10.69496/cjess.v1i2.24>
- On, S., Kheang, T., Phal, C., & Srim, S. (2024). Students' perception of the impact of AI generative tools in learning the English language. *Cambodian Journal of Educational and Social Sciences*, 1(2), 95–111. <https://doi.org/10.69496/cjess.v1i2.38>
- Ork, Y., Chin, P., Ban, T., & Em, S. (2024). Factors causing students' challenges in learning English speaking skills: A review of empirical works. *Cambodian Journal of Educational and Social Sciences*, 1(1), 26–36. <https://doi.org/10.69496/cjess.v1i1.6>
- Pang, S., & Nol, E. (2024). Book review: *Education in Cambodia: From year zero towards international standards* (Education in the Asia-Pacific region: Issues, concerns and prospects, Book 64). *Cambodian Journal of Educational and Social Sciences*, 1(2), 42–52. <https://doi.org/10.69496/cjess.v1i2.28>
- Pen, D., Em, S., & Huot, S. (2024). Review the advantages and disadvantages of the Funan Techo Canal project in Cambodia. *Cambodian Journal of Educational and Social Sciences*, 1(2), 11–22. <https://doi.org/10.69496/cjess.v1i2.29>
- Phal, C., On, S., Kheang, T., & Srim, S. (2025). Students' perceptions of intrinsic and extrinsic motivation on academic performance: A survey study at a Cambodian provincial university. *Cambodian Journal of Educational and Social Sciences*, 2(1), 67–90. <https://doi.org/10.69496/cjess.v2i1.47>
- Phin, K., & Huot, S. (2026). Teaching English for specific purposes in the age of automation within the Cambodian context. *Cambodian Journal of Educational and Social Sciences*, 3(1), 81–95. <https://doi.org/10.69496/cjess.v3i1.139>
- Prang, U. (2025). Introductory note on the intended meaning of public accountability and the influence of information and communication technologies. *Cambodian Journal of Educational and Social Sciences*, 2(2), 52–63. <https://doi.org/10.69496/cjess.v2i2.84>
- Ruos, D., & Em, S. (2025). Examining the relationship between instructional behaviors and critical thinking dispositions: A correlational study of general education. *Cambodian Journal of Educational and Social Sciences*, 2(1), 45–66. <https://doi.org/10.69496/cjess.v2i1.45>

- Ruos, D., Mao, K., & Em, S. (2026). Motivational pathways from autonomy-supportive learning climates to science-learning self-efficacy among Cambodian high school students. *Cambodian Journal of Educational and Social Sciences*, 3(1), 45–67. <https://doi.org/10.69496/cjess.v3i1.155>
- Veth, S., Meach, S., Prak, S., & Chhun, R. (2026). History of instructional leadership in Cambodia: A comprehensive literature review. *Cambodian Journal of Educational and Social Sciences*, 3(1), 96–112. <https://doi.org/10.69496/cjess.v3i1.127>
- Yoeurng, S. (2024). Implementing a school-based mentoring program at a secondary resource school in Takeo province, Cambodia. *Cambodian Journal of Educational and Social Sciences*, 1(1), 67–88. <https://doi.org/10.69496/cjess.v1i1.10>
- Yung, C., & Ban, T. (2026). Determinants of poor academic performance in English among Cambodian high school students: A survey study. *Cambodian Journal of Educational and Social Sciences*, 3(1), 32–44. <https://doi.org/10.69496/cjess.v3i1.157>
- Yung, C., Chin, P., Ban, T., & Em, S. (2024). Using different techniques and strategies to improve English reading skills: A review of literature. *Cambodian Journal of Educational and Social Sciences*, 1(1), 37–48. <https://doi.org/10.69496/cjess.v1i1.13>

Student transformation in higher education: A grounded theory study of English-major students in Battambang

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Article info

Article history

Received: September 10, 2025

Revised: May 19, 2026

Accepted: May 31, 2026

Keywords

Cognitive development

Personal growth

Professional readiness

Social skills

Student transformation

Article type

Research article

Abstract

A qualitative research design was used in this study based on the concept of grounded theory to examine student transformation in higher education. Semi-structured interviews were conducted with 26 English-major students studying at a specific university in Battambang Province and purposively sampled because of their diverse experiences academically, socially, and practically. Audio-recorded interviews were transcribed and then coded open, axial, and selectively through the constant comparative approach to construct a theory based on the students' experiences. The results showed that transformation occurs as a result of a complex relationship between independence, critical thinking, and social connection, as the interviewees reported increased levels of confidence, resilience, and maturity through engaging in academic tasks, collaborating on certain assignments, and encountering different points of view. The mediators of transformation included personal development, cognitive development, professional preparation, and interpersonal relationships with other people. On the other hand, specific ways for achieving this process include resolving disputes within the groups, doing independent research, using modern technologies to learn more efficiently, and developing communication and collaboration skills. This study is important for higher education researchers since it suggests a theoretical model of transformation, taking into account both personal and cognitive development alongside social connections, which are achieved through the student experience in an educational setting.

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1. Introduction

1.1 Background information

Over the past few decades, higher education in Cambodia has experienced considerable changes (Dy, 2013; Kitamura et al., 2016). In general, the education sector in this country includes the Royal Academy, universities, and colleges, which provide various pathways such as an associate degree, a bachelor's degree taking four years, a master's degree over two years, and PhD programs spanning from three to six years (Ministry of Education, Youth and Sport [MoEYS], 2019). Moreover, it is generally recognized that higher education plays an essential

role in the development of many countries; however, the development path of Cambodia is determined by both its difficult history and the efforts to rebuild higher education (Kitamura et al., 2016).

Following the destruction of the whole education system by the Khmer Rouge regime (1975–1979), higher education was slowly resurrected through the restoration of long-standing academic institutions like the Royal University of Phnom Penh (Dy, 2013; Kitamura et al., 2016). Subsequently, in the 1990s, the reforms played a significant part in the improvement of higher education in Cambodia by introducing private higher education and paying programs in this area (Dy, 2013). As a result, from only eight higher education institutions (HEIs) in 1997, their number increased to 128 by 2020. Furthermore, it covered all 20 provinces and the capital of Cambodia, Phnom Penh, and at the same time, 80 HEIs were supervised directly by the Ministry of Education, Youth and Sport (MoEYS) (Open Development Cambodia, 2022).

In addition, the development of higher education in this country was also stimulated by foreign help and assistance in the 1990s and 2000s after signing the Paris Peace Accord and conducting the UN-assisted elections (Kitamura et al., 2016). Consequently, this process has resulted in rapid but uncontrolled development of higher education in Cambodia, and by August 2022, there were 130 HEIs, out of which 82 were private institutions, and they enrolled almost 200,000 students. Nonetheless, this number accounts for merely 15% of the total number of students in 2019—one of the lowest figures among ASEAN countries (Ek & Muth, 2023). Furthermore, the sector is also faced with numerous problems, such as a profit-oriented focus, low curriculum standards, a lack of motivation for academic staff, and poor prospects for graduate employability (Ek & Muth, 2023).

Nevertheless, it is also acknowledged that investments into higher education are vital for the formation of a knowledge-based economy and a coherent society in Cambodia (World Bank Group, 2024). First, universities contribute to the development of the country by creating a flexible labor force, which includes scientists, professionals, teachers, and leaders. In addition, it contributes to the enhancement of knowledge due to both basic and applied scientific research. Finally, higher education plays the role of providing access to worldwide knowledge and, at the same time, contextualization of information according to the needs of Cambodian students (World Bank Group, 2024).

Moreover, it should be noted that nowadays the importance of higher education becomes especially apparent because of the increasing relevance of knowledge-based economies (World Bank Group, 2024). In such an environment, the poor quality of education can result in unprepared graduates, and consequently, the country might have to resort to using foreign labor or hiring poorly trained local personnel. Therefore, the government decided to invest a significant number of resources into the development of this sector under the direction of MoEYS. Among the implemented projects is the Higher Education Quality and Capacity Improvement Project (HEQCIP, 2010–2017) and the currently ongoing Higher Education Improvement Project (HEIP, 2018–2024), both of which are aimed at developing university capabilities (Heng et al., 2023).

1.2 Research gap

In light of the above discussion, it should be clear that Cambodia's system of higher education displays signs of growth as well as some persisting problems (Dy, 2013; Kitamura et al., 2016). Although there have been many efforts aimed at improving higher education through various policies and measures to strengthen higher education institutions, it is still plagued by concerns

regarding quality, access, and relevance (Ek & Muth, 2023; Heng et al., 2023). More importantly, while the reforms taking place in this area have impacted the entire system and brought about many changes, scholarly research has not adequately explored how these changes impact students.

To date, previous studies have considered factors related to the level of student satisfaction (Hok et al., 2021), problems in providing student services (Moeurn, 2025), the use of technology in transforming higher education (Flore & Mean, 2024; Flores & Mean, 2025; Sam, 2024), the interconnection between teaching and research (Nhem, 2023), and the implementation of artificial intelligence in higher education (By & Ros, 2024; Hoeurng et al., 2024). However, all the research questions raised in these studies concern only particular aspects and do not provide a theoretical framework for exploring students' experience throughout their education in more detail.

Furthermore, international models used in studying student development, learning, and transformation have proven their applicability in many different settings (Astin, 1999; Tinto, 1993), but they have rarely been considered in relation to Cambodian higher education. Consequently, there has emerged a knowledge gap concerning student development experiences in Cambodia, where higher education is rapidly changing amid ongoing resource constraints. Therefore, no comprehensive theoretical framework has been developed explaining how students transform in Cambodia's higher education environment sustainably

1.3 Research questions

The current study is guided by a set of research questions that translate the broader aims into specific and focused lines of inquiry. These questions operationalize the study's intent, ensuring that the investigation systematically addresses the multiple dimensions of student development in the Cambodian higher education context.

1. How do university experiences contribute to students' personal growth, academic and cognitive development, social and communication skills, professional readiness, and attitudinal transformation?
2. What challenges, conditions, and support systems influence students' ability to navigate the transition from high school to university?
3. In what ways do personal, academic, social, and professional dimensions interact to shape students' developmental trajectories during higher education?
4. What theoretical model can be generated to explain the dynamic interplay of these dimensions in fostering holistic student transformation in university contexts?

2. Literature review

Student satisfaction is still considered an important indicator of success in education. According to Tinto (1993), variables such as curriculum quality, service facilities, quality of teaching, and campus life impact learners' intentions to persist in their studies. In particular, it was discovered that factors such as campus life and social integration played a significant role as determinants of student satisfaction and retention (Astin, 1993; Tinto, 1993). In contrast, the opposite was seen regarding financial assistance and administrative support (Astin, 1993). As a result, students seemed to care more about the studying environment than other factors. Nevertheless, on the institutional level, there are still several major challenges related to student services that Cambodian HEIs face. For example, Moeurn (2025) pointed out that these

institutions lack proper assessment mechanisms, digital and physical infrastructure, adequate budget allocation, and fragmented systems of student support.

Furthermore, digital transformation (DT) is believed to play a crucial role in improving the higher education landscape of Cambodia. According to Bond et al. (2018), stakeholders generally hold positive views toward digital transformation in higher education. Moreover, aspects such as artificial intelligence, gamification, and blended learning have been discussed in terms of improving students' learning experiences (Bond et al., 2018). However, the question of inequalities in terms of digital competence remains relevant (van Deursen & van Dijk, 2019). Similarly, Henderson et al. (2017) stated that digital technologies can positively impact the efficiency of teaching and learning as well as student satisfaction. In particular, it was concluded that students' digital skills play an important role in maximizing the benefits of technology-enhanced learning (Henderson et al., 2017).

Despite these advantages, implementing DT requires overcoming some difficulties associated with such challenges as high cost, limited digital skills, technical difficulties, and cultural differences (Henderson et al., 2017; van Deursen & van Dijk, 2019). At the same time, technology creates great opportunities, including encouraging independent learning, developing 21st-century skills, and fostering international communication (Bond et al., 2018). Therefore, in this regard, apart from investing in infrastructure and training staff, the administration should create appropriate policies for mitigating the risk of students abusing technology.

In addition, the teaching-research nexus is another issue that requires consideration. As Healey and Jenkins (2009) concluded, although students may engage in inquiry-based learning and research-related activities, they often do not fully benefit from recent scientific knowledge when academic staff have limited research engagement. Consequently, the synergy of these two factors cannot be seen (Healey & Jenkins, 2009). Thus, students are deprived of the opportunity to get excited about the topics discussed at lectures.

Moreover, artificial intelligence (AI) represents an innovative element that significantly impacts the higher education sector. Specifically, according to Chan and Hu (2023), university students widely use various AI applications such as machine translation, text generation, and other tools. Students find such applications useful in terms of convenience and personalization, yet are skeptical about the risks related to the misuse of personal data, possible biases, and a reduction in critical thinking (Chan & Hu, 2023). In addition, Alam (2021) revealed that the perception of AI's role in education greatly influences student learning outcomes and academic performance. Therefore, positive attitudes are especially important (Alam, 2021).

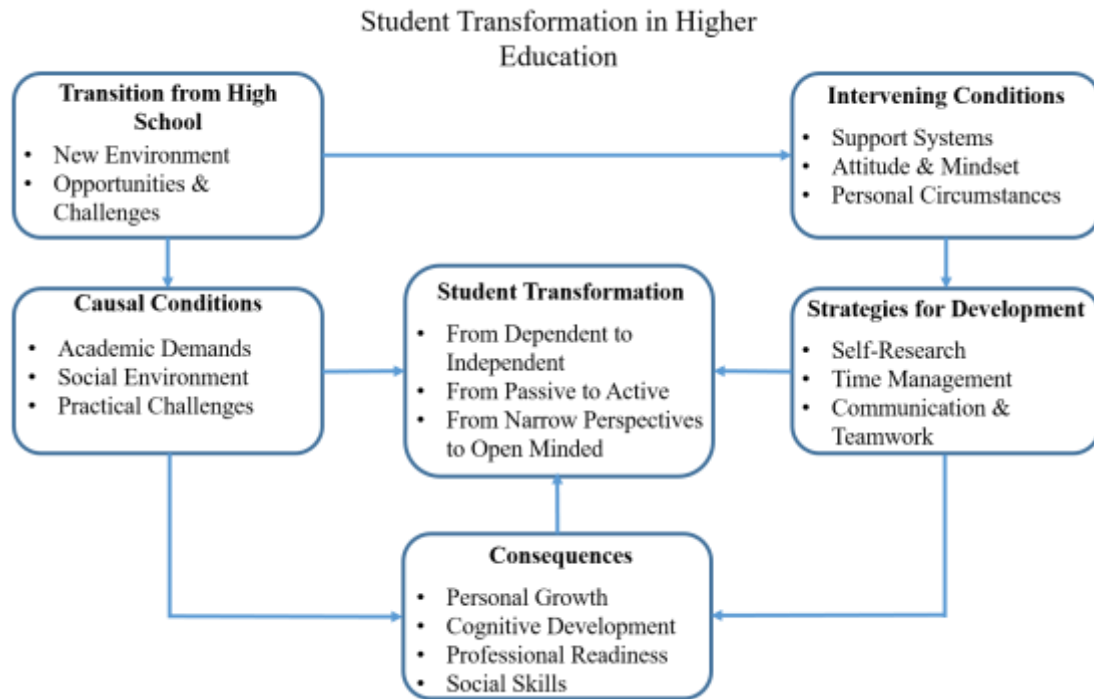
Overall, considering the results of the analysis, it is possible to state that Cambodian higher education is at a crossroads where the choice of priorities can determine its future success. In this respect, it seems reasonable to emphasize student satisfaction, digital transformation, and AI. However, in order to ensure successful changes in this field, it is necessary to address the problems associated with the absence of certain infrastructure, low involvement of teachers in research, and other difficulties mentioned above (Healey & Jenkins, 2009; Moeurn, 2025; van Deursen & van Dijk, 2019).

2.1 Theory of student transformation in higher education

Higher education fosters student transformation by simultaneously developing independence, critical thinking, and social connectedness through academic challenges, group experiences,

and exposure to diverse perspectives. This transformation is mediated by personal growth, cognitive skills, and professional readiness, leading to greater confidence, resilience, and maturity.

Figure 1. Student transformation in higher education



Source: Authors

2.1.1 Context: Navigating the transition

The transition to university is an important phase in the lives of young people, where many opportunities and difficulties arise. As students become members of new social groups and encounter new expectations, they have to cope with unfamiliar situations. At the same time, although they can develop their knowledge and skills while gaining independence in their actions, the process might be difficult due to various challenges, including adapting to self-directed learning and collaborating with others in teams. Therefore, several theories can help analyze students' development during their transition to university.

For example, Chickering's theory about the development of identity among college students reveals that they become competent, emotionally stable, and learn to balance autonomy and interdependence (Chickering & Reisser, 1993). Consequently, it proves that college education is an appropriate setting where students' self-confidence and independence develop, thereby contributing to their identity formation. Similarly, according to Schlossberg's theory about transitional situations, adaptation depends on four variables: the situation, self, support, and strategies used (Anderson et al., 2012). In this regard, the transition from high school to university can be classified as normative and requires adaptation.

Furthermore, academic and social integration are significant aspects of this development process. Specifically, following the student integration model suggested by Tinto (1993), young people have to integrate into both academic and social environments.

2.1.2 Causal conditions in the university transition

The move towards the university stage is characterized by various causes, including academic requirements, social factors, and practical aspects. Collectively, all of these causes have a significant effect on how the students develop and learn throughout their university experience. Therefore, student development and learning theories offer useful information that helps to understand how students react to the different causes and use them constructively.

First, academic requirements such as researching, presenting ideas, engaging in discussions, and having tight deadlines have a great importance in helping students become intellectually mature. In this regard, according to Perry (1970), the theory of cognitive development indicates how students progress during their stay at university in terms of developing from a dualist to becoming more relativistic and contextual in decision making. Consequently, researching assignments and debates encourages students to analyze different points of view, which helps them develop intellectually. Similarly, Kolb's (1984) theory on experiential learning indicates that knowledge is acquired through various stages, including experiencing, reflecting, conceptualizing, and experimenting. Accordingly, this applies to assignments such as research and presentation projects since they involve students in practical processes.

Moreover, the social environment of the university is another factor that affects the learning process and helps students adapt to their new environment. Specifically, collaboration through group projects and networking activities, as well as exposure to various cultures, is one of those ways through which people may collaborate and be exposed to diverse ideas. According to Bandura's (1977) social learning theory, people learn through observation, imitation, and modeling. Therefore, in a group situation, a student can improve his/her communication and collaborative abilities through imitation of peers' behavior. Furthermore, self-authorship theory by Baxter Magolda (2001) shows the importance of interpersonal interaction that can assist a student to form his/her identity and beliefs.

In addition to this, practical challenges become the conditions for learning. For example, students need to become independent by solving problems concerning life issues, managing finances, and using technical devices. In this context, the theory of self-regulated learning by Zimmerman (2000) explains how students set certain goals for themselves, monitor and regulate their progress towards meeting those goals, and adjust strategies when necessary to reach them. Consequently, all these activities make learning more extensive. Furthermore, the concept of high-impact educational practices by Kuh (2008) gives additional information about this topic.

Overall, these theories demonstrate that the causal conditions students face in higher education are not merely obstacles but essential components of their developmental journey. On the one hand, academic demands challenge them to think critically and learn experientially; on the other hand, social environments foster identity and interpersonal growth through interaction, while practical challenges cultivate autonomy and self-regulation. Therefore, the university experience represents an integrated learning environment where multiple conditions converge to prepare students for academic, professional, and personal success.

2.1.3 Central phenomenon: The journey of transformation

The central concept in university education can be described as the transformation of students into learners who become independent rather than dependent, turn into active researchers rather than passive listeners, transform from being timid to being bold, and change from being

narrow-minded people into open-minded and culture-conscious ones. Therefore, in order to explain this transformational process, it is necessary to look at several main theories that explain the intellectual, psychological, and social growth of the students while getting their education in the university.

First, the transformation from dependence to independence is clearly described by the theory of transformative learning suggested by Mezirow (1991). In his opinion, adults make the greatest step towards education through critical reflection, which results in changing their perspectives. Accordingly, concerning students in the university, they move from being dependent on educators in terms of setting goals and making decisions about learning to autonomous learners who can do all this by themselves (Mezirow, 1991).

Another important transition is when students become active researchers and critical thinkers instead of remaining passive recipients of knowledge. In this regard, the theory that explains this transition is Bloom's taxonomy, which was initially formulated in 1956 and modified by Anderson and Krathwohl in 2001 (Anderson & Krathwohl, 2001; Bloom, 1956). According to the hierarchy of skills described by Bloom, while at lower stages people are involved in memorizing facts and comprehension of the material provided, higher-order thinking requires analysis, evaluation, and creation (Anderson & Krathwohl, 2001). Consequently, students have a chance to engage in activities promoting the development of skills required for successful functioning in universities and their future lives.

Furthermore, a change from being shy to becoming a confident communicator is described by the theory suggested by Hymes in 1972 and known as communicative competence. Specifically, Hymes (1972) paid special attention to the fact that effective communication is more than the proper use of grammar. Rather, it presupposes that a person should understand what is appropriate in various situations. Therefore, in university, students acquire communicative competence through real-life experiences involving communication during group work, discussions, and debates (Hymes, 1972).

Last but not least, the transition from a limited worldview to open-mindedness and cultural intelligence can be seen through the lens of Bennett's (1993) developmental model of intercultural sensitivity. According to this theory, intercultural sensitivity consists of several stages that range from ethnocentrism, which is characterized by seeing one's own culture as the center of the world, to ethno-relativism, when one can appreciate cultural diversity and adjust accordingly (Bennett, 1993). Consequently, higher education in multicultural universities with a focus on global issues and international communication allows students to follow the described pattern.

Overall, as we see, a combination of the above-listed theoretical approaches gives us a strong foundation to explain the phenomenon of students' transformation. In particular, reflective learning, critical thinking, communicative competence, and intercultural sensitivity help students become self-reliant, confident, and global citizens (Anderson & Krathwohl, 2001; Bennett, 1993; Hymes, 1972; Mezirow, 1991).

2.1.4 Intervening conditions in university student development

Mediating conditions are an essential determinant of how students adapt and grow in higher educational environments. In particular, they consist of support systems, attitudes and mindsets, and individual background factors. Therefore, some theoretical frameworks describe how mediating conditions affect students and aid in their development.

First, the role of support systems composed of teachers, other students, and university resources is important for the student's adjustment process. According to Social Support Theory, emotional, informational, and instrumental support can act as buffers and improve one's ability to cope with challenges (Cohen & Wills, 1985). Consequently, at universities, peer groups and mentorship programs enable students to cope with their studies and integrate into a new community (Cohen & Wills, 1985). Similarly, another theory that explains how students adapt and develop is Communities of Practice, described by Lave and Wenger (1991). Specifically, it emphasizes the importance of social interaction in education since, through communication with knowledgeable members of a community, one learns and becomes more competent (Lave & Wenger, 1991).

In addition, attitude and mindset represent other important intervening factors. According to the Growth Mindset Theory by Dweck (2006), students whose attitude towards challenges consists of viewing them as a means of learning are more likely to be persistent and resilient. As a result, such an approach enables students to look at mistakes as useful feedback, thus developing problem-solving skills and motivation (Dweck, 2006). Furthermore, according to the Expectancy-Value Theory by Eccles and Wigfield (2002), motivation can be explained by combining students' expectancy to be successful and their valuation of the task. Therefore, a positive attitude towards learning contributes to involvement in educational activities and extracurricular events (Eccles & Wigfield, 2002).

Moreover, the factors associated with personal circumstances, such as being far from one's family, financial independence, workload, among others, influence students' adaptation process. In this regard, Bronfenbrenner's Ecological Systems Theory (1979) offers insight into those circumstances because, according to the theory, individuals function within several interacting systems (Bronfenbrenner, 1979). Consequently, students' family background (microsystem and mesosystem), their financial situation (exosystem), as well as culture or society (macrosystem), impact students' experience of university life and decisions made during that period (Bronfenbrenner, 1979). Likewise, Resilience Theory (Masten, 2001) claims that resilient students have protective factors, which help cope with stress, maintain motivation, and overcome challenges (Masten, 2001).

Overall, viewed in combination, these theories illustrate how support systems, attitudes, and personal circumstances serve as crucial mediating factors in student development. By providing guidance, fostering positive mindsets, and helping students adapt to environmental pressures, these intervening conditions enable students to transform challenges into opportunities for growth, ultimately enhancing their academic performance, social competence, and personal resilience (Bronfenbrenner, 1979; Cohen & Wills, 1985; Dweck, 2006; Masten, 2001).

2.1.5 Strategies for student development in higher education

University freshmen need to adapt to a complicated environment that involves a number of skills, attitudes, and strategies. First of all, among the most important skills and behaviors required for success are conducting one's own research, learning to manage time and problems, developing skills in communicating and working in groups, controlling one's emotional states, and having a mentor and peers for consultations. Therefore, such skills have roots in the theories of psychology and education that shed light on how to deal with difficulties and improve.

To begin with, participating in self-research and learning independently is one of the key strategies associated with the idea of Self-Determination Theory, which focuses on autonomous, competent, and related individuals motivated intrinsically (Deci & Ryan, 1985). In particular, self-research helps students become more independent by promoting the skills of critical thinking and initiative development (Deci & Ryan, 1985). Similarly, another theory that helps explain the importance of such activities is Experiential Learning Theory, which emphasizes the significance of experiential learning, that is, experimenting and reflecting to gain new knowledge and insights about different phenomena (Kolb, 1984).

Furthermore, the theory that is behind effective communication and collaboration when working as a team member is the Social Learning Theory, which states that students gain new skills and social norms as a result of imitation and interaction with other people around them (Bandura, 1977). Consequently, group work helps students improve their interpersonal skills, as well as develop flexibility, knowledge about different cultures, and cooperative problem-solving (Bandura, 1977). In addition, emotional regulation is another important skill, which can be described as students' ability to remain patient and calm in the case of conflicts. In this regard, this skill is based on Emotional Intelligence Theory, which explains how people should understand their emotions and those of other people (Goleman, 1995).

Moreover, the last theory, which may help students succeed in their studies, is Goal-Setting Theory. Specifically, this theory focuses on setting clear and achievable goals that allow people to improve their motivation and manage their time more efficiently (Locke & Latham, 1990). Furthermore, getting some advice from mentors and peers is also important in the process of learning.

Overall, the combination of self-directed learning, skill development, emotional regulation, teamwork, and mentorship creates a holistic approach to student growth. Guided by the principles of Self-Determination Theory, Experiential Learning Theory, Social Learning Theory, Emotional Intelligence Theory, and Goal-Setting Theory, students are equipped not only to succeed academically but also to thrive socially, emotionally, and professionally, thereby preparing them for lifelong learning and career success (Bandura, 1977; Deci & Ryan, 1985; Goleman, 1995; Kolb, 1984; Locke & Latham, 1990).

3. Methodology

3.1 Research design

The research design of this work involved qualitative techniques. As such, it aimed to investigate the overall effect of experiences on the process of individual development among Cambodian university students. In addition to describing the experiences of students, this study had an important objective of developing a theoretical model explaining how different aspects of higher education affect individual growth. Therefore, it was necessary to employ a qualitative methodology that would enable the researcher to obtain an accurate and detailed representation of the phenomena under investigation (Creswell & Poth, 2018).

To achieve this objective, the grounded theory methodology was utilized in order to collect data systematically and analyze findings. Unlike traditional approaches that involve predetermined categorizations, this method allows for the emergence of patterns and insights (Charmaz, 2014; Corbin & Strauss, 2015). Consequently, there were clear-cut procedures established to ensure that theory development remained consistent and rigorous and was guided

by empirical evidence. As a result, this allowed generating a theory based entirely on students' experiences (Glaser & Strauss, 1967).

Furthermore, it is necessary to point out that the theory obtained as a result of this research effort is inductive since it has been developed solely on the basis of empirical data collected during the course of the study (Glaser & Strauss, 1967). In addition, the resulting theory should be distinguished from conventional content analysis since no predesigned coding schemes have been utilized (Charmaz, 2014).

3.2 Samples and sampling techniques

In this research study, a purposive approach to sampling helped identify participants who would be able to give the most valuable information about their experience at the university (Patton, 2015). Specifically, the selection criteria for sampling included first-year undergraduate students and final-year undergraduate students majoring in English. Participants from both groups have managed to experience several aspects of university life and can analyze their personal development within their experience. Therefore, this approach enabled the researcher to obtain both the initial and fully formed experience of students.

A total of 26 English-major students attending a single university in Battambang took part in this study. The selection of these participants was justified by the fact that their experience covered all important aspects of university life. Furthermore, FGDs and individual interviews helped ensure reliable results through triangulation (Denzin, 1978). Thus, this sample was chosen based on its adequacy to the objectives of the study.

3.3 Instruments

To gather comprehensive data about the experiences and personal development of the students within the university, there are two main research instruments that will be used. The first research instrument is the Focus Group Discussion (FGD). Specifically, this will facilitate discussions in relation to common experiences with regard to academic, social, and personal development (Krueger & Casey, 2015).

The second research instrument is a semi-structured interview guide. In this research instrument, the interviewer will have the opportunity to engage with the participants by using guiding questions to enable them to explore their personal views regarding their experiences while in university (Kallio et al., 2016).

Together, these research instruments will utilize certain questions to gather comprehensive data from the participants.

3.4 Data collection procedures

The data was collected through both the focus group discussions and individual interviews. Specifically, a total of four focus groups, which involved six members per focus group discussion, were held for the first-year students in their second semester, while ten final-year students who were undertaking their first semester were interviewed. Consequently, this method provided the data necessary for the study since it allowed for the capture of data regarding both common experiences and individual reflections.

To ensure a comprehensive understanding of the phenomenon, two phases were undertaken in the process of data collection. In the first phase, the focus group discussion collected the

perspectives that had been shared concerning transformation and the challenges experienced collectively. Subsequently, this was followed by the semi-structured interview, which provided personal experiences. Furthermore, all the interviews and focus groups were tape-recorded after obtaining the consent of the participants.

3.5 Data analysis

Data analysis followed a methodology known as the grounded theory coding process, through which theories could be developed that are grounded in participants' experiences (Corbin & Strauss, 2015). To begin with, the process started from open coding, which allowed the emergence of initial categories. Subsequently, relationships between these categories emerged during the process of axial coding. Following this process, selective coding allowed for the development of a theoretical model on student transformation (Corbin & Strauss, 2015). Furthermore, the constant comparative process between all focus group discussions and interviews was used to allow for the emergence of theoretical saturation (Glaser & Strauss, 1967). Throughout this process, manual coding was used, where all codes were recorded in an Excel sheet.

As part of the process of generating a grounded theory, there is always a similar process in order to accomplish this aim. Accordingly, the process of generating the grounded theory in this research followed this pattern. Thus, the initial process was to determine whether the research would adopt the method of grounded theory. Next, the process proceeded to theoretical sampling, followed by memoing and data collection. During this process of data collection, memoing would still be conducted. Thereafter, open codes would be categorized as axial codes, and axial codes would be categorized again to become selective codes. Finally, theoretical codes and memos are then applied in order to generate codes, categorize these codes, reduce them, and create hierarchies (Charmaz, 2014; Corbin & Strauss, 2015).

3.6 Ethical considerations

Strict ethical guidelines were followed during the research to ensure the safety and well-being of the study's subjects. In particular, the involvement of the subjects in the study was completely voluntary, with informed consent being sought before the research was carried out (American Psychological Association, 2020). Furthermore, all of the transcripts were anonymized, and all data collected was safely stored away to avoid any form of misuse.

In addition, it is worth noting that the subjects were also made aware that they could opt out of the research at any point during the process and that this would not have any repercussions on them whatsoever (American Psychological Association, 2020).

4. Findings

4.1 Transformative dimensions of the university experience

4.1.1 Personal growth and identity formation

The university experience serves as a pivotal role in personal development and identity formation among students. As they transition from secondary education to higher learning, students commonly report significant changes in confidence, maturity, independence, and motivation—factors that collectively shape their evolving sense of self.

Confidence and Courage have emerged as prominent areas of transformation. Many students describe overcoming initial fears and anxieties related to public speaking, debates, and presentations. For example, one participant from FGD1 noted, *"I feel calm and simply focus on completing my tasks,"* reflecting a newfound ability to express ideas without fear or frustration. Similarly, Y4S1 shared, *"Presentations, debates, and discussions have strengthened my speaking and communication skills, and I am no longer afraid to speak in front of the class."* Y4S9 added, *"I now speak more confidently, without worrying too much about mistakes, because I understand mistakes are opportunities to learn."* These reflections illustrate the development of self-assurance and resilience, which extend beyond academic contexts into broader social interactions.

In parallel, students demonstrate increased maturity and responsibility. Emotional regulation and thoughtful decision-making have become integral to their daily lives. FGD3 explained, *"I feel more mature and not pressured... we have more responsibility due to our job and time management,"* while Y4S4 emphasized their ability to *"listen to and understand other people's ideas better, solve problems independently, speak in public without fear, and work well in a team."* Y4S9 also highlighted the importance of reflective thinking, stating, *"I have learned to think before acting... understanding what is appropriate to do and what to avoid."* These experiences underscore the role of university life in fostering deliberate behavior, self-control, and accountability.

A critical dimension of personal growth is developing independence and self-reliance. University life offers students opportunities for self-directed learning, independent project management, and the navigation of daily responsibilities without familial support. FGD2 described the freedom to *"search and learn independently... I have to plan the steps and do everything by myself,"* while FGD4 recounted spending an entire week completing a group assignment alone, which strengthened their confidence and problem-solving skills. Y4S1 remarked, *"Living far from home has taught me to solve problems on my own and manage my daily life and expenses effectively,"* and Y4S8 shared that living and working independently *has strengthened my ability to manage my own responsibilities.* These accounts highlight the emergence of resilience and autonomy in both academic and personal spheres.

Finally, university life fosters motivation and a commitment to self-improvement. Students frequently cite the flexibility and freedom of higher education as a driving force for continuous growth. FGD2 observed, *"At university, people are focused on their own goals... all we have to do is work hard and improve ourselves... that leads to a bright future."* Y4S5 explained that challenging academic tasks *"push me to strengthen my skills and expand my understanding of the world."* At the same time, Y4S8 noted that completing numerous assignments has *"helped me practice discipline, persistence, and effective time management... I hope to continue improving myself even more after graduation."* Y4S10 emphasized that higher education encourages them to *"think deeply, solve problems, and adapt to new situations,"* contributing to a forward-looking mindset and personal development.

In sum, the university environment plays a pivotal role in shaping students' personal growth and identity. By nurturing confidence, maturity, independence, and motivation, higher education equips students with the skills, attitudes, and mindset necessary to navigate academic, professional, and personal challenges. The experiences shared by students and FGD participants demonstrate that active engagement, self-directed learning, and persistence cultivate not only capable learners but also individuals with a stronger sense of self and purpose.

4.1.2 Academic and cognitive development

Beyond fostering personal growth, the university environment significantly supports students' intellectual development, offering a holistic platform for both academic and personal advancement. Through coursework, research, presentations, and collaborative activities, students report significant improvements in critical thinking, knowledge acquisition, research skills, creativity, and technological proficiency. These experiences collectively enhance their preparedness for future professional and personal challenges.

Critical Thinking and Problem-Solving have emerged as foundational aspects of cognitive development. Students consistently emphasize that higher education cultivates clearer thinking, more deliberate decision-making, and the ability to apply theoretical concepts to real-world situations. Y4S2 remarked, *"I now think more critically and make better decisions when solving problems,"* while Y4S7 noted, *"Improved critical thinking skills enable me to analyze information and make well-reasoned decisions... Stronger problem-solving skills help me apply theories and concepts to real-life situations."* Similarly, Y4S8 reflected, *"Before making any decision, I now consider the background and possible consequences... When I face a problem, I know how to approach it and find a solution."* These reflections illustrate the development of a systematic and analytical approach to challenges, enhancing both academic performance and practical reasoning.

Knowledge Acquisition encompasses not only subject-specific expertise but also general knowledge, life skills, and exposure to diverse perspectives. Students describe how university learning broadens their intellectual horizons and equips them with tools for lifelong learning. FGD1 shared, *"We constantly try to improve our English more and more by studying in class or doing research,"* while FGD3 added, *"I can get a lot of new language from other subjects... I get some experience from teachers who tell me and give me advice."* Y4S1 emphasized the practical value of this learning: *"I have gained valuable general knowledge and life experience from my lecturers, which will benefit me both in daily life and in my future career."* Exposure to diverse peers also contributes to intellectual growth, as Y4S9 noted, *"Meeting students from different places has introduced me to new perspectives."* These experiences demonstrate that knowledge acquisition extends beyond textbooks to include cultural understanding, interpersonal learning, and personal development.

Research and Creativity are further indicators of cognitive advancement. Students frequently cite independent learning, innovative problem-solving, and creative presentation skills as outcomes of their academic engagement. FGD1 explained, *"I do a lot of research, I study by myself, I think about new things to do to make my assignment presentation more catchy,"* while FGD2 added, *"I can use my creativity to do what I want."* FGD4 described a particularly demanding experience: *"I spent a whole week doing the assignment by myself... then presented it to other students... this is how I improve."* These accounts highlight the development of cognitive flexibility, originality, and perseverance in the face of academic challenges.

Technology and ICT Skills have become increasingly integral to students' academic development. Proficiency in digital tools, software, and online resources enhances their ability to complete assignments, conduct research, and communicate effectively. FGD4 recalled, *"Before I came to university, I did not know how to use the computer. Now I can use PowerPoint, Word, and AI... translate, print, and present assignments,"* while Y4S1 shared, *"I have improved in using technology, regularly working with my laptop and smartphone to prepare slides, conduct research, and use various apps and websites."* These skills are

essential for navigating the modern academic landscape and contribute directly to students' cognitive efficiency and productivity.

In conclusion, the university experience profoundly shapes students' academic and cognitive development. Through enhanced critical thinking, expanded knowledge acquisition, independent research and creativity, and technological mastery, students acquire the intellectual tools necessary for lifelong learning and professional success. The experiences shared by FGD participants and year 4 students reflect a holistic development that equips learners not only with academic competence but also with the cognitive agility and problem-solving skills required to navigate complex real-world challenges.

4.1.3 Social and communication skills

In addition to academic and cognitive growth, the university experience fosters essential social and interpersonal competencies. Through group work, presentations, discussions, and interactions with peers and faculty, students enhance their ability to communicate effectively, collaborate productively, and adapt to diverse social contexts. These skills are critical not only for academic achievement but also for personal development and professional readiness.

Teamwork and Cooperation emerge as foundational elements of students' social development. Many students noted that participating in group assignments and collaborative projects challenges them to work with peers who have varying working styles and levels of engagement. A participant from FGD1 shared, *"Teamwork or group work in assignments is very tough... mostly people don't respond to what you're saying in the group... now I feel calm and just do and finish what I did,"* illustrating how students develop resilience and independence within team settings. In contrast, FGD2 expressed appreciation for group activities: *"University often has group projects or presentations... I enjoy meeting new friends. We can share ideas and work on group projects."* These experiences cultivate practical teamwork skills, patience, and mutual understanding. Y4S8 added, *"I have also improved my teamwork skills through frequent group work with classmates. These experiences have allowed me to share my opinions, listen to others, and learn to understand different perspectives."*

Communication and Relationship Building are central to students' social growth. Regular engagement in presentations, debates, and discussions helps students articulate ideas clearly and confidently. Y4S1 remarked, *"Presentations, debates, and discussions have strengthened my speaking and communication skills, and I am no longer afraid to speak in front of the class,"* while Y4S2 noted, *"My English skills—both in writing and speaking—have improved, allowing me to express my ideas more clearly... My presentation skills have also developed, enabling me to speak confidently in front of others."* Students also develop active listening and interpersonal awareness. Y4S4 shared, *"I now listen to and understand other people's ideas better... speak in public without fear, and work well in a team."* Similarly, Y4S9 reflected, *"I now speak more confidently, without worrying too much about mistakes... I listen more to others' ideas, especially my teachers and classmates."* These skills strengthen relationships with peers, lecturers, and professionals, contributing to a supportive and collaborative learning environment.

Networking and Exposure to Diversity further enhance students' social and communication competencies. Interacting with peers from varied cultural and academic backgrounds broadens students' perspectives and improves their adaptability. FGD3 highlighted, *"We met new people, new friends coming from different districts and provinces... we got new experiences from different teachers,"* while Y4S7 observed, *"Broader knowledge and perspective, leading*

to a deeper understanding of different cultures, ideas, and worldviews... Improved ability to work in teams and connect with professionals.” Exposure to diverse viewpoints fosters open-mindedness, empathy, and the ability to collaborate effectively in multicultural settings. As Y4S8 noted, “Interacting with people who have diverse ideas and life experiences has taught me to listen, understand, and respect different viewpoints.”

Overall, the university environment significantly contributes to the development of students’ social and communication skills. Through collaborative projects, public speaking opportunities, and cross-cultural interactions, students cultivate teamwork, effective communication, active listening, and intercultural understanding. The experiences shared by FGD participants and Y4 students reflect a comprehensive growth in social competencies, equipping them with the interpersonal skills essential for academic success and future professional engagement.

4.1.4 Practical and professional readiness

In addition to fostering social and communication skills, the university experience equips students with the discipline, practical competencies, and support systems necessary to navigate academic and professional challenges. Through time management, hands-on learning, and mentorship, students develop the confidence and capability to meet these demands effectively.

Time Management and Discipline form the foundation of students’ readiness for practical and professional responsibilities. Balancing academic workloads with personal obligations requires strong organizational skills and a goal-oriented mindset. FGD3 noted, *“We have more responsibility due to our job and time management,”* reflecting the heightened accountability students encounter in higher education. Y4S3 added, *“Meeting deadlines has strengthened my time management, and completing my academic goals has boosted my confidence,”* while Y4S4 emphasized, *“Higher education has helped me become more confident, responsible, and skilled at managing my time... I am more motivated to study and achieve my goals.”* Similarly, Y4S8 shared, *“Another important change is my ability to manage time and stay organized. I know how to make the best use of the 24 hours in a day by completing tasks step by step, ensuring that my time is not wasted.”* These reflections highlight how disciplined planning and effective time use prepare students to meet both academic and professional expectations.

Practical Skills acquired through assignments, presentations, translation tasks, and internships enable students to apply theoretical knowledge in real-world contexts. FGD1 explained, *“I do a lot of research, I study by myself, I think about new things to do to make my assignment presentation more catchy,”* while FGD4 shared, *“I spent a whole week doing the assignment by myself... then presented it to other students... this is how I improve.”* These experiences enhance not only academic competence but also problem-solving, critical thinking, and the ability to translate theory into practice. Y4S1 noted, *“Presentations, debates, and discussions have strengthened my speaking and communication skills... I have also improved in using technology, regularly working with my laptop and smartphone to prepare slides, conduct research.”* Y4S7 added, *“Stronger problem-solving skills, applying theories and concepts to real-life situations... Giving professional training through internships and practical work to link theory with real-world practice.”*

Teacher and peer support are essential in cultivating practical and professional readiness. Mentorship, guidance, and encouragement help students navigate complex academic tasks and foster a growth-oriented mindset. FGD3 stated, *“We got some experience from teachers who tell me and give me some advice,”* while Y4S7 remarked, *“Providing access to resources such*

as libraries, research facilities, and expert guidance from teachers... My professors have served as role models, inspiring me to improve myself as a student and future professional. Friendly and motivated classmates have also encouraged me to keep learning.” Likewise, Y4S9 reflected, *“University life—with its hard work, group projects, and inspiring teachers—has given me the tools to grow... I listen more to others’ ideas, especially my teachers and classmates.”* These experiences underscore the importance of a supportive academic environment in reinforcing skill development and professional preparedness.

In essence, the university environment effectively fosters practical and professional readiness by strengthening students’ time management and discipline, providing hands-on learning opportunities, and offering mentorship and peer collaboration. The reflections of FGD participants and Y4S1 students demonstrate that through these experiences, students not only enhance their academic abilities but also develop the practical, professional, and interpersonal skills essential for success in higher education and future careers.

4.1.5 Attitudinal and mindset shifts

Equally important, the university experience fosters significant shifts in students’ attitudes and mindsets. Through exposure to diverse perspectives, challenging academic tasks, and dynamic social interactions, students develop greater resilience, open-mindedness, and a constructive approach to learning—enhancing their academic journey and preparing them for life beyond higher education.

Open-Mindedness and Cultural Perspective emerge as key aspects of attitudinal growth. Students are consistently exposed to new ideas, cultures, and ways of thinking, which foster respect and appreciation for different viewpoints. FGD3 highlighted, *“We met new people, new friends coming from different districts and provinces... we got new experiences from different teachers.”* Similarly, Y4S5 reflected, *“Since I began pursuing higher education, I have grown more confident, disciplined, and open-minded... exposure to new knowledge, diverse perspectives, and challenging tasks... expand my understanding of the world.”* Y4S7, 8, and 9 echoed this sentiment, noting that interactions with peers from diverse backgrounds and engagement with varied academic content broadened their perspectives, enhanced their appreciation for cultural differences, and improved their communication skills. These experiences collectively cultivate a more inclusive and open-minded outlook, enabling students to integrate multiple perspectives in both academic and social contexts.

Resilience and Adaptability also play a central role in students’ attitudinal development. Navigating the challenges of higher education—from demanding assignments to complex group dynamics—requires persistence, problem-solving, and emotional flexibility. FGD1 shared, *“Teamwork or group work in assignments is very tough... before I would feel angry and didn’t want to say anything, but now I feel calm and just do and finish what I did.”* FGD2 added, *“I stopped thinking that everything has to be perfect. It’s alright if we all make mistakes,”* highlighting the ability to adapt to setbacks. FGD4 illustrated the development of self-reliance and endurance: *“I spent a whole week doing the assignment by myself... then presented it to other students... this is how I improve.”* Likewise, Y4S3 and 10 emphasized how exposure to new academic topics and problem-solving tasks strengthened their critical thinking and adaptability, enabling them to approach challenges with confidence and strategic thinking.

A Positive Mindset complements these attitudinal shifts, as students learn to view mistakes as opportunities and approach learning with optimism and self-confidence. FGD2 noted, *“What I*

like in university is self-improvement... people just focus on themselves, so all we have to do is work hard and improve ourselves.” FGD3 described a smoother transition to higher education: *“When I started studying at university, I felt it was not as hard as high school and felt better.”* Individual reflections further highlight this growth: Y4S1, 2, and 9 expressed that university life helped them overcome fear of public speaking, communicate more confidently, and embrace errors as part of the learning process. These attitudinal adjustments reflect a shift toward self-efficacy, personal growth, and constructive engagement with academic and social challenges.

These reflections underscore that university experiences significantly contribute to attitudinal and mindset shifts, shaping students’ personal and academic development. Exposure to diverse perspectives cultivates open-mindedness; navigating challenges builds resilience and adaptability; and embracing mistakes fosters a positive and proactive mindset. The reflections of FGD participants and Y4S1 students demonstrate that these shifts are instrumental in shaping confident, adaptable, and growth-oriented individuals—equipped not only to succeed academically but also to thrive in professional and social environments.

5. Discussion

There is a high degree of alignment between the literature review and the study findings, with numerous pieces of evidence found in the literature corroborating and extending the ideas generated through this study. In fact, the study findings provide an additional perspective on some themes identified previously while adding value to the existing body of research in the area of higher education.

Firstly, as far as students' satisfaction and engagement are concerned, previous research shows that the quality of teaching, university life, and institutional support can affect their ability to persevere in studying (Astin, 1993; Tinto, 1993). Indeed, the findings show that students feel more competent and satisfied in terms of personal growth, cognitive development, soft skills, and professional abilities as a result of engaging with various educational tasks, collaborating with peers, and participating in university life in general. Consequently, it appears that students' satisfaction becomes a driving factor for further transformation and motivation to learn. Likewise, when it comes to cognitive and academic development, literature sources suggest that the use of technology, research, and digital learning contributes to achieving better educational outcomes (Bond et al., 2018; Healey & Jenkins, 2009; Henderson et al., 2017).

Another area where there is agreement is social integration and communication. Specifically, research indicates the significance of peer interactions, college environment, and social involvement as important predictors of persistence in university settings (Astin, 1999; Tinto, 1993). Correspondingly, the findings of the present study provide qualitative evidence about how students learn teamwork skills, enhance their communication abilities, and develop intercultural awareness due to group activities, indicating how social integration helps in transforming oneself holistically. In addition, attitudinal and mindset transformations were stressed in the research literature and discussed among students who had developed self-determination and resilience as a part of a positive attitude towards successful transitions in college education (Anderson et al., 2012; Deci & Ryan, 2000; Dweck, 2006).

Furthermore, the findings of the research can be seen as an expansion of the previous research literature on the basis of concrete examples provided from the perspective of the participants. In particular, students share their experience of living alone, time management strategies, conflict resolution within groups, and the application of technology, such as artificial

intelligence, for studying purposes. Moreover, there is a new element introduced by this research concerning mentorship and support provided by peers rather than organizational structure, as discussed earlier. This finding aligns with the growing literature emphasizing the importance of peer learning, communities of practice, and informal support systems in higher education (Lave & Wenger, 1991; Tinto, 1993).

Nevertheless, despite the suggestion from previous literature that financial and administrative support may have less influence on students' satisfaction than social and academic integration (Astin, 1993; Tinto, 1993), it is clear that such support can play an important role in helping students become professionally ready and improve practical skills. Therefore, structural assistance can help students go through the process of transformation, regardless of its minor effect on satisfaction. On the other hand, while previous literature has pointed to the difficulties that exist in higher education due to uneven research involvement and insufficient infrastructure (Healey & Jenkins, 2009; Moeurn, 2025), it is evident that students can be resilient enough to overcome such problems and develop personally and intellectually.

In summary, the study results add to the literature by presenting contextualized information about transformation processes experienced by Cambodian students in personal, cognitive, social, and professional contexts. Admittedly, contradicting previous results would mean challenging theoretical concepts such as self-determination, experiential learning, and transformative learning, as they cannot exist without practical manifestations (Deci & Ryan, 2000; Kolb, 1984; Mezirow, 1991). Therefore, the present findings neither agree nor disagree with previous literature. Rather, they reveal how the mentioned theoretical concepts take place in practice.

6. Conclusion

The paper finds that the students studying for their higher education in Cambodia go through a major transformation on several fronts. In particular, this transformation is heavily influenced by involvement in challenging academics, collaborating with fellow students, and active participation in campus activities that improve student satisfaction and motivation. Furthermore, cognitive transformation takes place due to technological changes, research practices, and learning with the help of AI, thus allowing the students to cultivate critical thinking, research, creativity, and ICT skills. Moreover, social transformation occurs because of interaction and cooperation with other students and mentorship, and this helps in the acquisition of teamwork, communication skills, and resilience. Nevertheless, despite the constraints posed by the infrastructure, unequal research practices, and the system in general, the students remain resilient and determined.

Overall, these findings highlight the significance of institutional assistance and experiential learning in helping develop holistic transformations in students within the higher education sector in Cambodia. Therefore, taking these findings into account, it is necessary for higher education institutions in Cambodia to promote increased participation by the students by exposing them to diverse academic challenges and activities on campus. In addition, the use of AI and digital technologies should be considered alongside research-based learning for promoting mental growth in students. Likewise, it is recommended that mentoring programs and peer-to-peer interactions be facilitated to foster social interactions among students. Finally, students should be encouraged to develop resilient attitudes and become self-directed learners to aid their transformation.

However, certain limitations need to be taken into account when analyzing the findings. For instance, while the qualitative method enables researchers to generate profound insights into students' experiences, it does not allow generalization in a statistical sense. In addition, the study was performed at one university only and solely among English majors. Consequently, its findings might not apply to other universities, fields of study, or other Cambodian contexts, and the findings cannot fully reflect the experiences of students majoring in other faculties and universities. Therefore, further studies should consider using larger quantitative samples encompassing more than one university and various fields of study to obtain broader generalization, explore statistical relations between variables of interest, and add depth to the qualitative findings presented in this paper.

Acknowledgments

The authors wish to convey their profound appreciation to the reviewers and the editing team of CJESS for their hard work. This piece would not have emerged in academic circles without their professional academic work.

Conflict of interest

No potential conflict of interest was reported by the authors.

Funding

The authors received no financial support for the study, authorship, and/or publication of this study.

Declaration of AI usage

The authors used Grammarly to polish the language in some parts of the article. However, they declared that the article's content is entirely theirs and not generated by any means.

References

- Alam, A. (2021). Possibilities and apprehensions in the landscape of artificial intelligence in education. In *2021 International Conference on Computational Intelligence and Computing Applications (ICCICA)* (pp. 1–8). IEEE.
<https://doi.org/10.1109/ICCICA52458.2021.9697272>
- American Psychological Association. (2020). *Publication manual of the American Psychological Association* (7th ed.). American Psychological Association.
- Anderson, L. W., & Krathwohl, D. R. (Eds.). (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. Longman.
- Anderson, M. L., Goodman, J., & Schlossberg, N. K. (2012). *Counseling adults in transition: Linking Schlossberg's theory with practice in a diverse world* (4th ed.). Springer Publishing Company.
- Astin, A. W. (1993). *What matters in college? Four critical years revisited*. Jossey-Bass.
- Astin, A. W. (1999). Student involvement: A developmental theory for higher education. *Journal of College Student Development*, 40(5), 518–529.
- Bandura, A. (1977). *Social learning theory*. Prentice Hall.
- Baxter Magolda, M. B. (2001). *Making their own way: Narratives for transforming higher education to promote self-development*. Stylus Publishing.

- Bennett, M. J. (1993). Towards ethnorelativism: A developmental model of intercultural sensitivity. In R. M. Paige (Ed.), *Education for the intercultural experience* (pp. 21–71). Intercultural Press.
- Bloom, B. S. (Ed.). (1956). *Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain*. David McKay.
- Bond, M., Marín, V. I., Dolch, C., Bedenlier, S., & Zawacki-Richter, O. (2018). Digital transformation in German higher education: Student and teacher perceptions and usage of digital media. *International Journal of Educational Technology in Higher Education*, 15, Article 48. <https://doi.org/10.1186/s41239-018-0130-1>
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press.
- By, S., & Ros, K. (2024). Artificial intelligence adoption and student learning outcomes in Cambodian higher education. *Cambodian Education Review*, 2(1), 45–61.
- Chan, C. K. Y., & Hu, W. (2023). Students’ voices on generative AI: Perceptions, benefits, and challenges in higher education. *Interactive Learning Environments*. Advance online publication. <https://doi.org/10.1080/10494820.2023.2253868>
- Charmaz, K. (2014). *Constructing grounded theory* (2nd ed.). Sage.
- Chickering, A. W., & Reisser, L. (1993). *Education and identity* (2nd ed.). Jossey-Bass.
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98(2), 310–357. <https://doi.org/10.1037/0033-2909.98.2.310>
- Corbin, J., & Strauss, A. (2015). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (4th ed.). Sage.
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). Sage.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Plenum Press.
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- Denzin, N. K. (1978). *The research act: A theoretical introduction to sociological methods* (2nd ed.). McGraw-Hill.
- Dweck, C. S. (2006). *Mindset: The new psychology of success*. Random House.
- Dy, S. S. (2013). Strategies and policies for basic and higher education in Cambodia: Historical perspectives. *International Education Studies*, 6(9), 153–162. <https://doi.org/10.5539/ies.v6n9p153>
- Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology*, 53, 109–132. <https://doi.org/10.1146/annurev.psych.53.100901.135153>
- Ek, K., & Muth, S. (2023). Higher education in Cambodia: Current developments, challenges, and future directions. *Cambodian Journal of Educational Research*, 3(1), 1–18.
- Flore, C., & Mean, P. (2024). Digital transformation and learning effectiveness in Cambodian universities. *Journal of Educational Technology and Innovation*, 5(2), 33–49.
- Flores, C., & Mean, P. (2025). Stakeholder perspectives on digital transformation in Cambodian higher education. *Higher Education Development Review*, 7(1), 15–32.
- Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Aldine.
- Goleman, D. (1995). *Emotional intelligence: Why it can matter more than IQ*. Bantam Books.

- Healey, M., & Jenkins, A. (2009). *Developing undergraduate research and inquiry*. Higher Education Academy.
- Henderson, M., Selwyn, N., Finger, G., & Aston, R. (2017). Students' everyday engagement with digital technology in university: Exploring patterns of use and non-use. *Journal of Higher Education Policy and Management*, 39(5), 503–518. <https://doi.org/10.1080/1360080X.2017.1326244>
- Heng, K., Sol, K., & Em, S. (2023). COVID-19 and digital transformation of Cambodian higher education: Opportunities, challenges, and the way forward. In P. Ordóñez de Pablos, X. Zhang, & M. N. Almunawar (Eds.), *Handbook of research on education institutions, skills, and jobs in the digital era* (pp. 307–327). IGI Global. <https://doi.org/10.4018/978-1-6684-5914-0.ch016>
- Hoeurng, P., Chan, S., & Vann, D. (2024). Undergraduate perceptions of artificial intelligence applications in Cambodian higher education. *Journal of Educational Innovation and Technology*, 4(1), 22–39.
- Hok, C., Neth, B., & Sok, S. (2021). Factors influencing student satisfaction and persistence in Cambodian higher education institutions. *Cambodian Journal of Education*, 1(1), 25–40.
- Hymes, D. H. (1972). On communicative competence. In J. B. Pride & J. Holmes (Eds.), *Sociolinguistics: Selected readings* (pp. 269–293). Penguin.
- Kallio, H., Pietilä, A.-M., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: Developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing*, 72(12), 2954–2965. <https://doi.org/10.1111/jan.13031>
- Kitamura, Y., Hirakawa, Y., & Peou, C. (Eds.). (2016). *The political economy of schooling in Cambodia: Issues of quality and equity*. Springer. <https://doi.org/10.1007/978-981-287-618-4>
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice Hall.
- Krueger, R. A., & Casey, M. A. (2015). *Focus groups: A practical guide for applied research* (5th ed.). Sage.
- Kuh, G. D. (2008). *High-impact educational practices: What they are, who has access to them, and why they matter*. Association of American Colleges and Universities.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge University Press.
- Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Prentice Hall.
- Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist*, 56(3), 227–238. <https://doi.org/10.1037/0003-066X.56.3.227>
- Mezirow, J. (1991). *Transformative dimensions of adult learning*. Jossey-Bass.
- Ministry of Education, Youth and Sport [MoEYS]. (2019). *Education strategic plan 2019–2023*. Ministry of Education, Youth and Sport.
- Moeurn, C. (2025). The challenges and strategic recommendations for student services in higher education in Cambodia. *Educative: Jurnal Ilmiah Pendidikan*, 3(2), 83–110. <https://doi.org/10.70437/educative.v3i2.1316>
- Nhem, S. (2023). The teaching-research nexus in Cambodian public universities. *Journal of Higher Education Studies*, 13(4), 88–101.
- Open Development Cambodia. (2022). *Higher education*. <https://opendevdevelopmentcambodia.net/topics/higher-education>
- Patton, M. Q. (2015). *Qualitative research & evaluation methods* (4th ed.). Sage.

- Perry, W. G., Jr. (1970). *Forms of intellectual and ethical development in the college years: A scheme*. Holt, Rinehart and Winston.
- Sam, R. (2024). Technology integration and educational transformation in Cambodian higher education. *Educational Development Quarterly*, 18(2), 67–82.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). University of Chicago Press.
- van Deursen, A. J. A. M., & van Dijk, J. A. G. M. (2019). The first-level digital divide shifts from inequalities in physical access to inequalities in material access. *New Media & Society*, 21(2), 354–375. <https://doi.org/10.1177/1461444818797082>
- World Bank. (2024). *Cambodia's higher education and skills for growth and competitiveness*. World Bank.
- Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 13–39). Academic Press. <https://doi.org/10.1016/B978-012109890-2/50031-7>

Determinants of poor academic performance in English among Cambodian high school students: A survey study

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Article info

Article history

Received: June 30, 2025

Revised: May 20, 2026

Accepted: June 02, 2026

Keywords

Cambodia

English language learning

High school education

Motivation

Student performance

Article type

Research article

Abstract

English has emerged as a global lingua franca for numerous individuals across various nations. The various applications of English have rendered its instruction and acquisition a central concern for numerous scholars and educators. The inquiry into the motivation for learning English has garnered increased interest from scholars, as this element significantly impacts students' learning outcomes. This study sought to examine the factors contributing to inadequate performance in English among high school students at Hun Sen Oraing Ov High School in Cambodia. The study utilized a quantitative methodology through self-administered questionnaires to attain this purpose. Three hundred questionnaires were distributed to 300 high school students in grades 10, 11, and 12. Nevertheless, merely 256 students submitted the questionnaires. The data was quantitatively evaluated using Microsoft Excel to determine mean scores, standard deviation, and frequency. The findings indicated that the factors contributing to inadequate performance in English among students at Oraing Ov High School are associated with their perceptions of the English subject for the national grade-12 examination, the proficiency of teachers in English, family educational background, the English curriculum, and the teaching and learning resources. The study is constrained by the methodology employed and the participant count. Current findings suggest that the Ministry of Education, Youth and Sport (MoEYS) should mandate English as a compulsory subject in the national grade-12 examination, whereby any high school student who fails the English subject will receive a failing grade in the grade-12 national examination. Furthermore, the present findings indicate that the MoEYS should prepare a regular professional development program for Cambodian English teachers to enhance their pedagogical skills and ensure adequate resources are available in public schools for use in English language instruction.

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1. Introduction

The English language is used in the globalized world. The English language is a vital instrument for information and communication. It is the language of choice for many international communication purposes, such as investments, political alliances, diplomacy, and foreign affairs (Igawa, 2008). Moreover, being able to communicate in English means that a

person will get a better job with better pay. English is used to communicate with people, especially in business organizations from overseas. That idea makes English an important component to be included in education programs.

For the Cambodian context, the Ministry of Education, Youth and Sport (MoEYS) has introduced initiatives to enhance English language education in state schools, realizing the importance of English in connection with the Association of Southeast Asian Nations (ASEAN) Economic Community (AEC). English language educators believe that the opening of the AEC will have an impact on English language use and English language education in Cambodia. English is emerging as a necessary skill for those in domestic and regional job markets, and it is also important for Cambodian university students (Tweed & Som, 2015).

1.1 Research problem

Among the subjects tested in the examinations, many students, including those who obtained grade A, performed poorly in the English language (Oeun & Heng, 2024a). Below are some of the factors that cause low performance among Grade 12 learners in the English language in the National Examination, as illustrated by Oeun and Heng (2024a). They include knowledge of the teachers on the subject matter, activation of the subject by the teacher, effective teaching of the subject syllabus, interest and motivation of the teacher and students, availability of teaching and learning materials in the event of the English literature, and suitability of the training of teachers of that particular subject.

The main obstacles to learning English were the characteristics of the teachers, study plans, instructional resources, classroom activities, class size, and the attitudes of the students toward self-learning (Em, 2022). Though some literature has shown reasons behind the poor performance in the English subject among Grade 12 students, the previous studies have been conducted on a small scale. It is worth doing a survey to find out more reasons or factors contributing to poor performance in the English subject. To add to the literature, the current study will deeply investigate the reasons why Cambodian high school students perform poorly in the English subject. The current study will be conducted in Oraing Ov District, Tbong Khmum Province, Cambodia. The future findings will be localized to deal with the local issues concerning poor performance in the English subject.

1.2 Research objectives

This the study is to explore how students perceive the role of the teachers' ability as a factor behind poor academic performance in the subject of English. This will focus on classroom management, instructional strategies, the support and facilitation that the teachers provide for the learners, lesson explanations, and the knowledge that the teachers have concerning the English language at Hun Sen Oraing Ov High School, Cambodia.

2. Literature review

2.1 English language in Cambodia

Though once used during the Cambodian Republic Regime (1970–1975), English was not spoken at all during the Genocidal Regime of Pol Pot and the Khmer Rouge (1975–1979), but reemerged in this country with the arrival of the United Nations Transitional Authority in Cambodia (UNTAC) for the first national election in 1993. This event allowed a remarkable

increase in the use of English across the country, especially in the areas where UNTAC officials were located (Narith, 2008).

Even after the Khmer Rouge government collapsed in 1979, learning and teaching English were not immediately promoted. Under the effects of communism, it was illegal to teach or learn French or English. Learning and teaching French or English was forbidden, and anyone who did so risked incarceration. Instead, learning Vietnamese and Russian was emphasized during this time (Em, 2022).

Currently, English has been included in the Cambodian curriculum from Grade 4 (MoEYS, 2015a). There was an intention to include English in the curriculum from primary school education levels (MoEYS, 2015b). Although English has been included in the Cambodian curriculum for more than 30 years, the challenges of English learning and teaching are still a major problem for teachers of English and Cambodian students, especially those who live in the countryside.

2.2. Importance of English

Crystal (2003) noted that English has become the global language because of the power and strength of the speakers of the language. The English language is important for people in many parts of the world for communication purposes, doing business, the media industry, the language of the Internet, and for enjoying different cultures (Aziza, 2020).

There are numerous advantages associated with English as far as development is concerned, including increasing the employment potential of people, enabling international collaboration, providing access to information and research materials, facilitating international travel and trade for individuals, supporting disaster management, and being the neutral language in conflict situations (Coleman, 2010).

Even though English is widely spoken today for business, politics, and technology, it is only our beginning point. Given that English is the language spoken in the majority of the globe today, its significance cannot be understated or overlooked. In addition to being a useful tool for communication, English can also help us work in the present and the future by facilitating environmental adaptation (Putra & Nopember, 2020).

Because it connects the East and the West as well as the North and the South, English has become the language of the modern world with the greatest rate of growth, earning its status as a commercial language. Almost every industry in the world, including science, technology, engineering, medicine, trade and commerce, scientific research, education, travel, the internet, banking, business, advertising, the film industry, transportation, and pharmacy, uses English. As a medium of communication for non-native speakers, English is crucial. These qualities of English as an international language highlight its use as a global instrument for cross-cultural communication (Chang, 2011).

2.3. Grade 12 exam pass and fail rates

As indicated by MoEYS (2015a), the national Grade 12 examination was reformed in 2014 for the improvement of the quality and efficiency of education in the secondary education sector. The passing rate of the national Grade 12 exam has increased annually (Bredenberg, 2018). However, the passing rate of the English subject in the national examination is very low. As noted by Oeun and Heng (2024a), although the passing rate in the national Grade 12

examinations has risen, many students could not pass English in the national examination. As an example, in the year 2015-2016, only 28.17% of students passed English in the national exam, while 71.83% did not. In the academic year of 2018-2019, only 14% of the total number of 79,052 students passed the English test, while the other 86% did not pass. Conversely, in Kampong Cham province, only 512 students (8.82%) from the total number of 5,799 students passing the national Grade 12 examination in the academic year of 2022-2023 could pass English (Department of Education of Kampong Cham, 2023). Furthermore, in Kampong Cham province, 11% of students in Grade A scored an F mark in the English subject.

2.4. English pass/fail rates (First Semester)

From the reports, the examination results of semester 1 for grade 10 students for the academic year 2022-2023, the number of students who failed was 60.17%, while students who passed stood at 39.83% out of 448 students enrolled in the English course. In respect of grade 11, students passed 75.31% while students failed 24.69% for the academic year 2022-2023. On the other hand, for Grade 12 students in the same academic year 2022-2023, the percentage of failed students stood at 18.39% while passed students were 81.61% among 164 students in the English subject (Hun Sen Oraing Ov High School, 2023).

From the reports, the examination results of semester 1 of the academic year 2023-2024, the percentage of passed grade 10 students in the English subject was 81.61%, while failed students were 18.39% among 379 students. The percentage of failed grade 11 students was 32.01%, while that of passed students was 67.99% among 328 students (**Hun Sen Oraing Ov High School, 2024**).

3. Methodology

3.1 Research design

The current study employed a quantitative approach using a survey research design to investigate students' perceptions of teachers' ability as a factor contributing to poor performance in the English subject among Cambodian high school students at Hun Sen Oraing Ov High School (Creswell & Creswell, 2018). Specifically, the study focused on classroom management, teaching techniques, teacher support and facilitation, lesson explanation, and teachers' knowledge of the English language as perceived by students.

3.2 Research samples and sampling

To conduct this research, students from Hun Sen Oraing Ov High School were selected as the target population. The school has six classrooms at the upper secondary level, with approximately 300 students enrolled in Grades 10, 11, and 12. One important justification for selecting this sample was that upper secondary students have sufficient learning experience and interaction with English teachers to provide informed perceptions regarding teacher ability and classroom practices.

A total of 256 students were selected using a multi-stage cluster random sampling technique (Cohen et al., 2018). To ensure adequate representation of the student population, participants from both morning and afternoon study shifts were included in the survey. The demographic characteristics of the participants are presented in the findings section.

3.3 Research instrument

A structured questionnaire was used to collect data from students at Hun Sen Oraing Ov High School (Fraenkel et al., 2019). The questionnaire consisted of three sections: demographic information, classroom management, teaching techniques, and teachers' knowledge of the subject matter. The items were designed to examine students' perceptions of teacher-related factors, including classroom management practices, instructional techniques, lesson explanation, teacher support, and teachers' English language competence. Responses were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

3.4 Data analysis

The collected data were entered and analyzed using Microsoft Excel. Descriptive statistical techniques, including frequencies, percentages, means (M), and standard deviations (SD), were employed to summarize and interpret the responses (Field, 2018). The findings were then presented in tables and discussed in relation to the study objectives and relevant literature.

4. Findings

4.1 Demographic information

Table 1. Demographic information of the participants

Information	Numbers, categories, and frequency (%)			
Total number of participants	N = 256	Female 157 (61.32%)	Male 98 (38.28%)	
Ages	14-15 years 51 (19.92%)	16-17 years 174 (67.96%)	18-19 years 30 (11.71%)	20-21 years 1 (0.39%)
Grades	Grade 10 94 (36.71%)	Grade 11 121 (47.26%)	Grade 12 41 (16.01%)	

Demographic data of the subjects included in the present research are provided in Table 1. Specifically, a total of 256 students of Hun Sen Oraing Ov High School took part in the survey. Of these, females amounted to 157 (61.32%), whereas males made up 98 students (38.28%). These figures show that more female students took part in the study.

Age-wise, most participants belonged to the age group of 16-17 years old, totaling 174 students (67.96%). Participants aged 14-15 years made up 51 students (19.92%), while students aged 18-19 accounted for 30 students (11.71%). In addition, only one respondent (0.39%) belonged to the age group of 20-21 years old. Consequently, the age range of most of the students involved was that of Cambodian upper secondary students.

Grade level-wise, the largest group comprised 121 students (47.26%) of Grade 11. Furthermore, 94 participants (36.71%) belonged to Grade 10, whereas the rest of the

respondents (16.01%) made up 41 students of Grade 12. The obtained results prove that students of all three grades of upper secondary schools took part in the research.

4.2 Teachers' ability

Table 2. Classroom management

No.	Items statement	Response distribution (%)						
		M	St.D	SD	D	N	A	SA
1.	My teacher doesn't pay attention to teaching students.	3.87	.96	2.73	6.64	17.18	47.26	25.78
2.	My teacher always arranges the students' seats well.	3.24	1.17	8.20	20.70	21.87	34.76	13.28
3.	My classroom environment is fresh.	3.72	1.01	3.90	9.37	17.57	48.04	20.31
4.	My classroom is an unsafe learning environment.	3.96	.92	2.34	5.85	12.89	49.60	28.12
5.	My teacher rarely reviews previous lessons before starting new lessons.	4.01	1.06	3.51	6.25	16.40	32.81	41.01

Rating scale point: 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree.

Table 2 depicts students' perceptions about classroom management issues in the English class of Hun Sen Oraing Ov High School. The results show various classroom management issues that can affect the poor achievement of students in English class.

"My teacher does not pay enough attention to teaching students" received a mean score of 3.87 (SD = 0.96), meaning that many students agreed that teachers did not pay sufficient attention to the students in their teaching. Similarly, the statement "My teacher always arranges students' seats properly" gained a mean score of 3.24 (SD = 1.17), meaning that many students agreed that the arrangement of students in class was appropriate.

"My classroom environment is fresh" received a mean score of 3.72 (SD = 1.01), meaning that many students agreed that the classroom environment was pleasant enough to study. However, the statement "My classroom is not a safe learning environment" received a relatively high mean score of 3.96 (SD = 0.92).

In addition to this, the item "My teacher rarely reviews previous lessons before starting new lessons" was given the highest average score of 4.01 (SD = 1.06). It indicates that many students agree that their teachers did not usually review their previous lessons before teaching new lessons. This might have a negative impact on the students' comprehension of the lessons in the English language.

Conclusively, the research findings suggest that classroom management problems such as lack of attention from teachers, inadequate lesson review, and unfriendly environment are among the reasons for low scores in the English subject.

Table 3. Teaching techniques and the teacher's knowledge of the subject matter

No.	Items statement	Response distribution (%)						
		M	St.D	SD	D	N	A	SA
1.	My teachers use different techniques to help me and other students learn English better from session to session.	3.24	.83	1.17	4.29	30.07	46.48	16.79
2.	My teacher gets my friends and me to work as a group.	3.73	.11	3.90	13.67	14.06	41.40	26.56
3.	My teacher explains English lessons unclearly.	4.07	.82	0.78	3.12	15.62	46.87	32.03
4.	My teacher seldom supports and facilitates me when I don't understand English lessons.	4.11	.85	0.78	2.73	17.96	40.62	37.5
5.	The teacher uses learning and educational strategies that are suitable for students' learning abilities.	3.82	.90	2.34	5.46	20.31	50.39	20.70
6.	In general, my English teachers of English have limited knowledge of the English language.	4.49	.70	0.39	1.95	3.90	34.76	58.59

Table 3 shows the students' perception of teaching techniques and the teacher's knowledge of the English language. From the results, there appear to be several areas of concern regarding teaching techniques and teachers' competence.

The statement "My teachers use different techniques to assist other students and me to improve our knowledge of English throughout each session" had a mean score of 3.24 (SD = 0.83). This implies that students had some level of satisfaction with the varied teaching techniques used by teachers while teaching English.

The statement "My teacher makes me and other students do activities in groups" had a mean score of 3.73 (SD = 0.11). This implies that there were group work activities in English lessons. Such group work activities may facilitate interactions among students.

On the contrary, the statement "My teacher does not explain English lessons clearly" had a high mean score of 4.07 (SD = 0.82). This means that most students agreed that English lessons were not clearly explained.

Likewise, the statement “My teacher seldom helps and guides me whenever I fail to grasp English lessons” scored highly with a mean of 4.11 (SD = 0.85). This implies that students generally felt a lack of guidance and assistance from teachers whenever they were having problems in learning.

Moreover, the statement “The teacher applies strategies of teaching that suit learners’ level of learning ability” was rated with a mean score of 3.82 (SD = 0.90), which indicated that students generally agreed on some teaching strategies applied to match students’ learning abilities.

Significantly, the statement “As a whole, my teachers of English do not know much about the English language” was recorded with the highest mean score of 4.49 (SD = 0.70). This indicates that many students perceived that their English teachers knew less about the English language. It is a critical factor that could negatively impact English education and the students’ performance at schools.

Overall, the results indicate that poor teaching techniques, ambiguous teaching approaches, lack of teacher guidance and help, and lack of English knowledge by teachers are the main reasons for poor performance in the English subject of Cambodian secondary students.

5. Discussion

The findings of the current study indicate that poor performance in the English subject among Cambodian high school students is influenced by multiple interconnected factors, including teachers’ ability, classroom management, students’ attitudes, family educational background, curriculum implementation, and the availability of learning materials. These findings are consistent with previous studies conducted in Cambodia and other developing educational contexts, which suggest that student achievement is shaped by a combination of teacher-related, learner-related, family-related, and institutional factors (Em, 2022; Oeun & Heng, 2024b).

Regarding teachers’ ability, the findings reveal that many students perceived their English teachers as having limited knowledge of the English language. The respondents also agreed that teachers often explained lessons unclearly and seldom supported students when they faced difficulties in understanding English lessons. These findings support the study by Oeun and Heng (2024b), who emphasized that teachers’ subject-matter knowledge and instructional effectiveness are major contributors to students’ poor achievement in English subjects. Similarly, Simuchimba (2016) highlighted that inadequate teacher preparation and inappropriate training negatively affect students’ learning outcomes. Research has consistently shown that teacher quality is one of the most influential school-based factors affecting student achievement (Darling-Hammond, 2000; Hattie, 2009). When teachers lack sufficient pedagogical and linguistic competence, students may become confused, demotivated, and less engaged in classroom learning activities.

In terms of classroom management, the findings show that students believed teachers rarely reviewed previous lessons before introducing new content. Moreover, many respondents perceived the classroom environment as unsafe and inconducive to learning. Effective classroom management is important because it helps maintain student attention, discipline, and participation during lessons. Poor classroom management may reduce students’ concentration and motivation to learn English effectively. These findings are aligned with Em (2022), who found that classroom activities and teachers’ characteristics significantly affect English learning outcomes among Cambodian students. Likewise, Marzano et al. (2003) argued that

effective classroom management contributes significantly to students' academic achievement and positive learning behaviors.

The findings also suggest that teaching techniques play an important role in influencing students' performance. Although some students acknowledged that teachers used various teaching techniques and group work activities, many still believed that English lessons were not clearly explained. This indicates that the application of teaching methods alone is insufficient if instructional delivery remains ineffective. Teachers need to employ learner-centered and communicative teaching approaches that actively involve students in speaking, listening, reading, and writing activities. Rao (2019) argued that English language teaching should encourage interactive communication practices because English functions as an international language for global communication. Similarly, Richards (2006) emphasized that communicative language teaching promotes meaningful interaction and improves learners' language proficiency.

Furthermore, the findings indicate that students' attitudes toward English learning contribute to poor performance. Students with negative attitudes toward English often lack motivation, self-confidence, and interest in learning the language. Such students may not spend sufficient time practicing English independently outside the classroom. Positive attitudes, on the other hand, encourage active participation, attention, and willingness to learn. This finding supports Putra (2020), who explained that English learning requires personal motivation and awareness of its importance for future education and employment opportunities. Gardner (1985) similarly noted that positive attitudes and motivation are among the strongest predictors of success in second-language learning.

Family educational background and parental support are also important factors influencing students' achievement in English. Students whose parents provide encouragement, educational guidance, and learning support tend to perform better academically. In contrast, students from families with limited educational support may face challenges in developing strong learning habits and academic motivation. This finding demonstrates that learning English is not influenced solely by school factors but also by home environments and parental involvement. Epstein (2011) emphasized that parental involvement positively influences students' academic achievement, behavior, and educational aspirations. Likewise, Fan and Chen (2001) found a significant positive relationship between parental involvement and students' academic performance.

The findings regarding the English curriculum and teaching materials also reveal several concerns. Although English has been integrated into the Cambodian curriculum since primary school, students in rural areas still encounter difficulties in learning English effectively. Limited access to learning materials, educational technologies, and supplementary resources may reduce students' opportunities to practice and improve their language skills. These findings are consistent with MoEYS (MoEYS, 2015a), which acknowledged the challenges in English language teaching and learning despite curriculum reforms. Previous studies have also highlighted disparities in educational resources between urban and rural schools in Cambodia (Dy, 2013; Hayden, 2014).

Moreover, the findings concerning pass and fail rates demonstrate that English remains one of the most difficult subjects for Cambodian students. Although the overall national examination passing rates have improved over recent years, failure rates in the English subject remain considerably high. The reports from Hun Sen Oraing Ov High School show fluctuations in passing and failing percentages across Grade 10, Grade 11, and Grade 12 students during the

academic years 2022–2023 and 2023–2024. This situation reflects broader national concerns regarding English language competence among Cambodian high school students and supports previous observations regarding persistent challenges in English language education across the country (MoEYS, 2015b; Oeun & Heng, 2024a).

Overall, the findings of the current study demonstrate that poor performance in English is not caused by a single factor but rather by a combination of teacher-related, student-related, family-related, and institutional factors. Addressing these issues requires cooperation among schools, teachers, parents, and educational policymakers in order to improve the quality of English language education in Cambodia. Strengthening teacher professional development, improving classroom management practices, promoting positive student attitudes, increasing parental involvement, and providing adequate learning resources may contribute significantly to improving English language learning outcomes among Cambodian high school students.

6. Conclusion and recommendation

6.1. Conclusion

This study aims to analyze the causes of poor performance in English among the students of Cambodian high schools located in Hun Sen Oraing Ov High School of Oraing Ov District, Tbong Khmum Province. Poor performance in the English language is attributed to different interconnected factors, including teachers' knowledge, classroom management skills, teaching methods, students' attitudes towards English, family education background, curriculum implementation, and availability of teaching/learning materials.

The study showed that most students thought that their English teachers had inadequate knowledge and ineffective methods of teaching. Teachers' inability to give clear explanations and adequate support for the students made students encounter problems in comprehending English lessons. Moreover, some of the problems encountered in classroom management and students' participation were among the issues identified in the study.

In addition, the attitude of the students towards English lessons was identified as one of the factors influencing their performance in English lessons. Some students did not have interest, motivation, and confidence in learning the English language. As a result, they performed poorly in their studies. Likewise, family support and educational background were other factors influencing the students' performance in their English lessons.

In addition, the study has shown that the lack of teaching materials continues to impede effective learning of English in both urban and rural schools. Even with curriculum changes and the introduction of English in the Cambodian education system for decades now, it is clear that there are still many students who fail to perform satisfactorily in English subjects.

Lastly, the results of the passing and failure rates show that English continues to be a difficult subject for many high school students in Cambodia. While it is true that the country's overall exam results have improved in recent times, the fact remains that there are still very high failure rates when it comes to English.

6.2. Recommendations

From the outcomes of the research, several recommendations are suggested in terms of how students' performance could be improved in the English subject.

First, it is recommended that English teachers develop their competence continuously through professional development programs, workshops, and training activities. Teachers need to enhance their English language proficiency and improve their skills in order to give quality lessons to meet the needs of the students.

Second, it is recommended that a learner-centered approach of teaching and interactive lessons be encouraged so that students can actively participate in learning English.

Thirdly, the schools' administrators and educators ought to improve the study environment through the provision of secure, friendly, and student-friendly classrooms. Adequate teaching and learning materials, such as books, dictionaries, audio-visual media, and digital learning technologies, should also be provided in order to assist in the process of learning the English language.

Fourthly, parents and the family environment in general should be involved more actively in helping their children's studies through encouraging the children to learn English at home, keeping track of their progress, and inspiring them to understand the importance of the English language in higher learning and in their jobs later.

Fifthly, the Ministry of Education, Youth, and Sport should continue developing its English language teaching policies and implementation, especially in the rural areas where the English language is not developed properly. Moreover, adequate assistance should be provided to schools that have problems with hiring English teachers and a lack of educational resources.

Lastly, future researchers should carry out further research on the same topic, but involving several schools and provinces of Cambodia. In addition, the methods of future research may include qualitative or mixed-methods research.

Acknowledgments

The authors wish to convey their profound appreciation to the reviewers and the editing team of CJESS for their hard work. This piece would not have emerged in academic circles without their professional academic work.

Conflict of interest

No potential conflict of interest was reported by the authors.

Funding

The authors received no financial support for the study, authorship, and/or publication of this study.

Declaration of AI usage

The authors used Grammarly to polish the language in some parts of the article. However, they declared that the article's content is entirely theirs and not generated by any means.

References

Aziza, I. N. (2020). The importance of the English language. *International Journal on Orange Technologies*, 2(1), 22–24.

- <https://media.neliti.com/media/publications/333378-the-importance-of-english-language-2c7b6d03.pdf>
- Bredenberg, K. (2018). *Secondary education: Progress with reforming secondary education*. KAPE. https://www.kapekh.org/files/report_file/106-en.pdf
- Chang, B.-M. (2011). The roles of English language education in the Asian context. *Pan-Pacific Association of Applied Linguistics*, 15(1), 191–206. <https://eric.ed.gov/?id=EJ939947>
- Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* (8th ed.). Routledge. <https://doi.org/10.4324/9781315456539>
- Coleman, H. (2010). *The English language in development*. British Council. <https://www.teachingenglish.org.uk/sites/teacheng/files/UK011-English-Language-Development.pdf>
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage.
- Crystal, D. (2003). *English as a global language* (2nd ed.). Cambridge University Press.
- Darling-Hammond, L. (2000). Teacher quality and student achievement: A review of state policy evidence. *Education Policy Analysis Archives*, 8(1), 1–44. <https://doi.org/10.14507/epaa.v8n1.2000>
- Department of Education of Kampong Cham. (2023). *Kampong Cham high school diploma examination results, 2022–2023* [Report].
- Dy, S. S. (2013). Strategies and challenges for higher education in Cambodia. *International Higher Education*, 70, 23–25. <https://doi.org/10.6017/ihe.2013.70.8718>
- Em, S. (2022). Challenges of English language learning and teaching in Cambodia: A case study of Kith Meng Brasat High School. *Cambodian Journal of Educational Research*, 2(1), 62–80. <https://doi.org/10.62037/cjer.2022.02.01.04>
- Epstein, J. L. (2011). *School, family, and community partnerships: Preparing educators and improving schools* (2nd ed.). Routledge. <https://doi.org/10.4324/9780429494673>
- Fan, X., & Chen, M. (2001). Parental involvement and students' academic achievement: A meta-analysis. *Educational Psychology Review*, 13(1), 1–22. <https://doi.org/10.1023/A:1009048817385>
- Field, A. (2018). *Discovering statistics using IBM SPSS Statistics* (5th ed.). SAGE.
- Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2019). *How to design and evaluate research in education* (10th ed.). McGraw-Hill Education.
- Gardner, R. C. (1985). *Social psychology and second language learning: The role of attitudes and motivation*. Edward Arnold.
- Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge. <https://doi.org/10.4324/9780203887332>
- Hayden, M. (2014). Education in Cambodia: Challenges and prospects. In D. Sloper (Ed.), *Higher education in Cambodia* (pp. 1–18). UNESCO.
- Hun Sen Oraing Ov High School. (2023). *Report on the academic results of Grades 10, 11, and 12 students in the academic year 2022–2023* [School report].
- Hun Sen Oraing Ov High School. (2024). *Report on the academic results of Grades 10, 11, and 12 students in the academic year 2023–2024* [School report].
- Igawa, K. (2008). English language and its education in Cambodia, a country in transition. *Shitennoji University Bulletin*, 46, 343–369.
- Marzano, R. J., Marzano, J. S., & Pickering, D. J. (2003). *Classroom management that works: Research-based strategies for every teacher*. ASCD.
- Ministry of Education, Youth and Sport [MoEYS]. (2015a). *Curriculum framework of general education and technical education*.

- Ministry of Education, Youth and Sport [MoEYS]. (2015b). *Education strategic plan 2014–2018*. Ministry of Education, Youth and Sport. https://planipolis.iiep.unesco.org/sites/default/files/ressources/cambodia_education_strategic_plan_2014-2018.pdf
- Narith, K. C. (2008). English language variety in Cambodia. In *CamTESOL Conference on English Language Teaching: Selected Papers* (Vol. 4, pp. 98–107).
- Oeun, S., & Heng, K. (2024a). Factors contributing to students' failure in the English subject in national Grade 12 examinations in Cambodia: A literature review. *Journal of Studies in the English Language*, 19(2), 85–116. <https://so04.tci-thaijo.org/index.php/jsel/article/view/273473>
- Oeun, S., & Heng, K. (2024b). Factors influencing students' academic achievement in English language learning in Cambodia. *Cambodian Journal of Educational Research*, 4(1), 15–32. <https://doi.org/10.62037/cjer.2024.04.01.02>
- Putra, E., & Nopember, S. (2020). The importance of learning English nowadays. *Jurnal Institute of Technology Sepuluh November at Surabaya*, 1(7), 1-7.
- Putra, I. N. A. J. (2020). Students' motivation in learning English and its relationship with academic achievement. *Journal of English Language Teaching*, 9(2), 123–132.
- Rao, P. S. (2019). The role of English as a global language. *Research Journal of English*, 4(1), 65–79. <https://www.rjoe.org.in/Files/vol4issue1/new/OK%20RJOE-Surya%20Rao.pdf>
- Richards, J. C. (2006). *Communicative language teaching today*. Cambridge University Press. <https://www.professorjackrichards.com/wp-content/uploads/Richards-Communicative-Language.pdf>
- Simuchimba, J. (2016). *Factors contributing to poor performance of Grade 12 learners at the national examination in literature in English in secondary schools of Kafue District, Zambia* (Doctoral dissertation, University of Zambia).
- Simuchimba, M. (2016). Factors contributing to poor academic performance among secondary school students. *International Journal of Education and Research*, 4(5), 377–390.
- Tweed, A. D., & Som, M. (2015). English language education in Cambodia and international support ahead of ASEAN integration. In R. Stroupe & K. Kimura (Eds.), *ASEAN integration and the role of ELT* (pp. 13–40). IDP Education (Cambodia).

Motivational pathways from autonomy-supportive learning climates to science-learning self-efficacy among Cambodian high school students

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Article info

Article history

Received: November 06, 2024

Revised: March 11, 2026

Accepted: May 29, 2026

Keywords

Autonomy

Cambodia

Learning climate

Motivational factor

Science-learning self-efficacy

Article type

Research article

Abstract

The purpose of this study was to examine the relationships among motivational factors, science self-efficacy, and autonomy-supportive climates in science education among Cambodian high school students. A correlational research design was employed to investigate the associations among these variables. The study involved 685 high school students, with the sample size determined using a rule-of-thumb approach for quantitative research. The findings revealed that autonomy-supportive climates significantly predicted both motivational factors and science self-efficacy in science education. Specifically, the self-decision provision predicted self-efficacy in conceptual understanding, whereas the acceptance provision significantly predicted self-efficacy in practical work. Furthermore, among the motivational factors, attainment value emerged as a strong predictor of science achievement, mediated by its association with science self-efficacy. Based on these findings, the study suggests that science teachers should create supportive learning environments that encourage students' autonomy, acceptance, and participation in science-related tasks in order to strengthen their self-efficacy, curiosity, perceived value, and sense of belonging in science education. In addition, educational stakeholders should promote inquiry-based and project-centered learning approaches within the curriculum. Future research should further explore these relationships across different educational contexts and learner populations.

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1. Introduction

With modern education, the scientific curriculum is considered the most effective and promotive sector. Science education becomes a backbone in reshaping how people address their misperceptions of global changes, rather than confusingly understanding the natural world, fostering critical thinking and problem-solving competencies, and informing decision-making through logical reasoning in the science world (Bybee, 2013). Significantly, the scientific implementation has assisted in managing the ongoing situation, allowing us to understand the relationship between human needs and natural processes (Cheng & Li, 2024). To enhance the effectiveness of science education, inquiry, experimentation, and evidence-based reasoning are essential for preparing students for both academic and real-life contexts

(Lederman & Lederman, 2019). In this case, students who were allowed to study science were expected to perceive scientific concepts that linked to well-practiced real-world situations.

Furthermore, the decline in interest in science-related skills has affected a greater number of learners (OECD, 2018). It is alarming that an increasing number of students aged 15 to 22 are switching from science to non-science fields (Freeman et al., 2019). Among Cambodian students in upper secondary school who were required to choose between the social science and science tracks, 62% opted for the social science track in 2020, an increase from 2014. The choice of the science track, on the other hand, fell sharply from 96% in 2014 to 34% in 2020. These trends contradict the government's efforts to enhance the workforce, which align with global trends (Pov et al., 2024).

As revealed above, adult learners' beliefs about choosing science-related skills pose a major barrier to scientific progress. Nevertheless, the most intriguing belief identified in the science-track-related course is science-learning self-efficacy (Britner & Pajares, 2006; Uzuntiryaki & Çapa Aydın, 2009). As Britner and Pajares (2006) and Uzuntiryaki and Çapa Aydın (2009) noted, science-learning self-efficacy is the most powerful driver of decision-making through self-confidence when learners' interests align with their intentions, thereby enhancing science content knowledge. In addition, these are related to Asian curricula that admit students to study science-related skills.

Not only this, academic motivations such as sense of belonging (Aelenei et al., 2020), attainment value (Eccles & Wigfield, 2002), and science-learning curiosity (Litman, 2005) also primarily contribute to a human's belief. To deepen self-beliefs that depend on human psychological states, such as those academic motivations (Aelenei et al., 2020; Bandura et al., 1996; Goodenow, 1993). In this notice, scientific belief is more likely to be fostered through a sense of belonging, attainment value, and curiosity about science learning.

Moreover, as argued by Banilower et al. (2010), effective science instruction is essential for accelerating scientific understanding in real-world practice, as societies become increasingly reliant on scientific advancement. Through the study of biology, chemistry, physics, and earth sciences, learners not only acquired content knowledge but also developed scientific literacy, a key competency for promoting active citizenship in the 21st century (Ward, 2018). In this sense, teacher instruction behind learning climates plays a vital role in predicting academic outcomes.

Therefore, science education is significant in contemporary education because it helps individuals deepen their knowledge of the natural world, develop critical thinking and problem-solving competencies, and improve decision-making. It manages ongoing situations to understand the relationship between human needs and natural products. Effective science learning climates accelerate science understanding and promote scientific literacy, which is essential for active citizenship in the 21st century. Inquiry, experimentation, and evidence-based reasoning are essential for preparing students for real-life contexts. Academic motivations such as a sense of belonging, attainment value, and curiosity about science contribute to people's belief in science.

2. Literature reviews

2.1 Science-learning self-efficacy in science education

Science-learning self-efficacy refers to students' beliefs in their ability to complete their academic tasks (Bandura et al., 1999). In the context of science education, science-learning self-efficacy refers to the degree to which learners believe they can understand scientific concepts, ranging from low to high cognitive processes, after adapting these concepts for experimental use, everyday problem-solving related to their livelihoods, and developing scientific communication skills (Lin & Tsai, 2013; Tsai et al., 2011; Wang et al., 2018). In this way, science-learning self-efficacy is divided into two types: cognitive and practical (Wang et al., 2018). As mentioned above, cognitive science-learning self-efficacy pertains to the degree to which science learners are aware of their confidence in perceiving science concepts to understand definitions, laws, and theories (conceptual understanding) and in applying complex cognitive skills (higher-order understanding). In contrast, practical science-learning self-efficacy pertains to the degree to which science learners can use those concepts in laboratory practice (practical work), adapt them in everyday problem-solving (everyday application), and argue with peers in science class (social communication). What is particularly noteworthy is that Wang et al. (2018) found that cognitive science-learning self-efficacy can influence practical science-learning self-efficacy, but the effects differ across contexts. Essentially, there is limited knowledge about how cognitive science-learning self-efficacy predicts practical science-learning self-efficacy in developing countries.

2.2 Motivational factors

To ensure one's belief is interpreted in a positive light, reducing negative moods rather than increasing positive aspects is crucial for internal attitudes, such as an individual's motivational aspects (Bandura & Wessels, 1994). Hence, science-learning self-efficacy does not solely exist to enhance choices related to science skills. As proposed, this study included four contributors: sense of belonging, attainment value, and science-learning curiosity, which were considered motivators in expanding the science interest for general education students.

In the context of science education, a sense of belonging refers to how emotionally secure, valued, and supported students feel (Freeman et al., 2007; Strayhorn, 2018). This includes feeling respected, cared for, and connected to others; trusting their teachers; and feeling motivated to actively engage in science classes as a result of these positive social-emotional conditions (Goodenow, 1993; Lewis et al., 2016). In this scenario, scientific learners consider external motivators to enhance their satisfaction with learning science. Essentially, Aelenei et al. (2020) depicted students with a weak sense of belonging; they reported reduced science-learning self-efficacy when pursuing a given academic choice in STEM and non-STEM fields. Moreover, based on expectancy-value theory, instructional climates promote a sense of belonging; students perceive learning tasks as important (Eccles & Wigfield, 2002). Regarding science-learning curiosity, students' sense of belonging nurtures the development of insightful curiosity in science learning (Amponsah, 2023). However, clear evidence linking a sense of belonging to task value, curiosity, and self-efficacy in science conditions remains limited in simultaneous models (Bandura, 1997).

In terms of attainment value, which is grounded in Expectancy-Value Theory (EVT), it refers to how much students perceive the importance of understanding scientific content, mastering proficiency in science subjects, solving problems rationally, and performing better in scientific academics (Eccles et al., 2005; Eccles & Wigfield, 2002). In this case, scientific learners reflect the internal value they place on learning, thinking, and excelling at science tasks. According to Britner and Pajares (2006), attainment value, a positive emotional state, influences an individual's beliefs by enhancing self-efficacy for performing and learning tasks. As found by Chan et al. (2023), self-efficacy in doing a task was associated with subjective task value.

Moreover, Di Leo et al. (2019) and Rossing and Long (1981) found that science-learning curiosity is linked to perceived value in learning tasks. According to Fraschini and Tao (2023), students become more curious and less nervous as they perceive a higher value. However, little is known about science perspectives and developing citizens.

As defined by Lindholm (2018) and Loewenstein (1994), science-learning curiosity refers to learners' sense of wonder and intrinsic passion for exploring the diverse information available in the world. Kashdan et al. (2009) identified two components of science-learning curiosity: predictable curiosity, which encompasses students' internal willingness to engage in independent learning, to overcome scientific challenges, to reflect on prior experiences, and to seek opportunities to enhance their scientific competencies proactively. In this case, science learners activated personal initiative, a desire to seek new information, and a confident attitude toward lifelong learning (Engel, 2011). Instead, unpredictable curiosity pertains to students' optimistic mindset when facing challenges, their eagerness to explore new experiences, and their intrinsic interest in tackling difficult tasks (Kashdan et al., 2009; Ryan & Deci, 2020). From this approach, science learners define their willingness to learn, their tendency toward risk-taking in knowledge pursuits, and a deeper quest to uncover scientific theories or concepts that emerge from real-world circumstances (Jirout & Klahr, 2012). Previous studies found that risk-taking behaviors, such as curiosity, predicted learning creative self-efficacy in science (Beghetto, 2009). However, little is known empirically about how curiosity predicts self-efficacy in science contexts.

2.3 Autonomy-supportive learning climates

Learning climates refer to the overall supportive offers that facilitate learning by incorporating emotional, social, psychological, and physical factors, which in turn affect students' academic performance (e.g., Deci & Ryan, 2000; Fouts & Myers, 1992; Gabel, 1994; Reyes et al., 2012). Various studies assert that autonomy-supportive learning climates are the most powerful determinants of psychological states (Deci & Ryan, 1985; Ruos et al., 2025; Ryan & Deci, 2000, 2017). In scientific contexts, autonomy-supportive learning climates refer to the extent to which teachers provide students with opportunities to deepen their engagement in decision-making about their learning processes and task choices (Reeve, 2006). Even though students' concepts differ from teachers' perspectives, teachers remain engaged in valuing them (Stefanou et al., 2004).

In addition, teachers encourage students to take ownership of their learning by engaging in activities such as setting goals, engaging in tasks, consulting various information sources, participating in structured educational groups, defining problem-solving strategies, and conducting peer evaluations (Deci & Ryan, 2000). An autonomous climate that promotes acceptance and appreciation of diverse viewpoints enhances learners' innovation in developing new concepts to meet their comprehensive requirements and processes (Beghetto, 2009; Hattie, 2008). By pursuing their expectations, they become active and reflective participants in their educational journey (Hattie, 2008; Niemiec & Ryan, 2009). Consequently, learners value their science-related learning tasks through their engagement, thereby fostering lifelong passions throughout their educational experiences (Ryan & Deci, 2020).

Therefore, autonomy-supportive learning climates such as self-decision and acceptance provisions seem to affect students' sense of belonging, attainment value, curiosity, and self-efficacy by enhancing accelerant agency, appreciating various perspectives, and exploratory characteristics along science circumstances (Patall et al., 2018; Patall & Zambrano, 2019;

Reeve & Cheon, 2021). However, little is known about empirical studies that specifically examine science learning climates, as this design focused solely on those settings.

2.4 The rationales and purposes of the research study

The purpose of this study was to examine the association between motivational factors, science-learning self-efficacy, and autonomy-supportive learning climates in science education. It was designed to address the decline in science-related skills, course engagement, and achievement; reconcile gaps in motivation theories; promote equity in science education; and elucidate the role of sense of belonging, attainment value, and curiosity in self-efficacy-related science conditions. The research confirmed the correlation between autonomy-supportive learning climates and the sense of belonging, attainment value, curiosity, and self-efficacy, thereby establishing a unified model of motivational pathways in scientific research. It also elucidated the practical implications for teacher training, emphasizing the impact of teachers' instructions on learners' psychological well-being and motivation. Most importantly, to equip students with the necessity of science competitions that navigate a rapidly evolving world. By identifying an influence strategy to engage science classrooms, investing in teacher training, and shaping the scalable interventions, the study has the potential to advance theory, practice, and policy. Hence, the researchers proposed the following research questions:

1. What is the relationship between motivational factors, science-learning self-efficacy, and autonomy-supportive learning climates in science education?
2. How is science-learning self-efficacy associated with motivational factors and autonomy-supportive learning climates in science education?

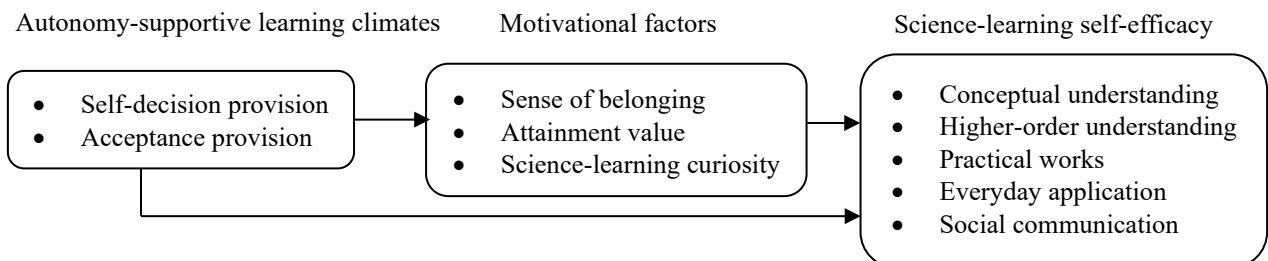


Figure 1. Conceptual framework of the relationship between science-learning self-efficacy, motivational contributors, and autonomy- supportive learning climates in science education

3. Methodology

A correlational research design using convenience sampling was employed in this study. To ensure the validity and reliability of the measurement model, the sample size was set to at least 5 times the number of indicators. Of the 685 high school students who voluntarily participated in this survey, 67.4% were female, and the typical student was a high school senior (78.1%). Of all academic foci, 43.5% were in the social sciences, while 56.1% were in pure science. Schools joined through Non-Project Support (NPS), GEIP, and New Generation School (NGS) fabricated the prevalent informants. Of all applicants, 442 (64.5%) were from Kampong Cham. There was a narrow age range in the sample, with a mean age of 17.55 years (SD = 0.978), ranging from 16 to 20 years (see Table 1).

Table 1. Description of samples within research study (N = 685)

Categories		Frequency	Percent
Gender	Female	462	67.4%
	Male	223	32.6%
Grade	Grade 12 th	535	78.1%
	Grade 11 th	150	21.9%
Skill choice	Social science	298	43.5%
	Pure science	384	56.1%
School types	Non-project support school (NPS)	406	59.3%
	General Education Improvement Project school (GEIP)	163	23.8%
	New Generation School (NGS)	116	16.9%
Provinces	Kampong Cham	442	64.5%
	Prey Veng	126	18.4%
	Svay Rieng	114	16.6%
Age	Mean	17.55	
	SD	0.978	

3.1 Research instrument

In this study, we employed the back-translation technique outlined by Behling and Law (2000). First, we adjusted the original English version. Then, we translated these items into Khmer. To enhance validity and reliability, we back-translated the Khmer version into English twice. To ensure the accuracy of the measurement tools, we consulted two bilingual teachers and two experts to evaluate the content validity of the operationalized definitions and items. Additionally, we gathered ratings from 60 high school students to assess face validity before utilizing the instrument with the overall research sample, employing a five-point Likert scale to measure responses (1 = rarely/not at all true, 5 = almost always/very true) within the model.

Science-learning self-efficacy was adapted from Chang et al. (2011) and Lin and Tsai (2013). As previously mentioned, self-efficacy in conceptual understanding measures students' ability to navigate learning tasks, formulate and utilize scientific knowledge, engage in logical reasoning, generate multiple types of problem-solving, determine conclusions, and expand their understanding of reflective and evidence-based reasoning in academic performance and problem-solving (10 items, e.g., "I can describe the information that I have made observations out of my studies," $\alpha = 0.88$). For self-efficacy in higher-order understanding, it measures

students' ability to use their knowledge to link scientific theories or concepts for prediction, elucidation, and estimation of scientific phenomena, such as formulating scientific hypotheses, originating conclusions, identifying impact factors, organizing the systematic inquiry, and deriving next-order questions based on scientific observations (5 items, e.g., "I can study or research phenomena based on specific theories or clear pre-planning," $\alpha = 0.84$). In terms of self-efficacy in practical works, it measures how well students are perceived to plan, conduct, solve problems, and evaluate scientific experiments, including selecting and using materials, designing procedures, accurately recording experimental data, relating results to theory, and adjusting for experimental errors during hypothesis testing (7 items, e.g., "I can associate theory and data to conclude the experimental results," $\alpha = 0.87$). In the matter of self-efficacy in everyday applications, it measures the extent to which students can understand and apply theoretical knowledge to real-world applications, such as interpreting social challenges, solving personal or practical problems, repairing or improving everyday equipment, and making informed career or life decisions based on scientific understanding (7 items, e.g., "I can interpret the social problems associated with the theory," $\alpha = 0.93$). As regards self-efficacy in social communication, it measures students' ability to interact meaningfully in academic engagements with peers, such as sharing personal ideas or feedback, clarifying multiple concepts, discussing scientific content knowledge, and correcting misconceptions by social dialogue and peer support (9 items, e.g., "I can use what I have learned to discuss with peers," $\alpha = 0.93$).

Regarding motivational factors, the sense of belonging in science studies was adapted from Trujillo and Tanner (2014). It measures how much learners feel valued and respected by others (5 items, e.g., "I feel respected by others," $\alpha = 0.81$). For attainment value in the science study, it was adapted from Trautwein et al. (2012) and Wigfield and Eccles (2000) and measures how important learners consider a science learning task and procedure by aligning it with their self-developed competencies and the rewards they receive from others (6 items, e.g., "I think it is important for me to identify a solution to the problem rationally," $\alpha = 0.91$). With science-learning curiosity, it was adapted from Kashdan et al. (2009). Predictable curiosity assesses the extent to which learners are eager to acquire new knowledge through challenging situations, aiming to enhance their self-competence through adequate self-preparation (6 items, e.g., "I consider difficult situations to be awkward or doing tasks as an opportunity to learn or build my abilities," $\alpha = 0.91$). Unpredictable curiosity measures the desire of learners to discover new information in unfamiliar situations during science learning tasks (6 items, e.g., "I like to try learning or doing something," $\alpha = 0.88$).

The concept of autonomy-supportive learning climates is adapted from Chan et al. (2023) and Niemi (2002). The self-decision provision assesses the extent to which learners perceive they have the freedom to make decisions about their learning, both in terms of tasks and interactions with peers (5 items, e.g., "My teacher accepts my suggestions when he arranges tasks for me to do," $\alpha = 0.86$). Acceptance provisions evaluate how accepted learners feel during activities such as learning inquiry, self-directed exploration, cooperative problem-solving, reflective evaluation, and adherence to student-centered principles (6 items, e.g., "My teacher allows me to provide a detailed explanation of the new solution related to the task," $\alpha = 0.89$).

3.2 Data collection

Between the 1st and 28th of February in 2023, data collection was adapted by using the self-survey questionnaire. Students' perception was affected by their understanding of science-linked courses. Entry allowance was officially supported by the Royal University of Phnom Penh's ethics board under protocol number 136/2023 RUPPKS. Various high school principals

supported our initiative. Additionally, informants felt secure in offering their honest understanding because they were allowed to opt out of sharing their personal information. All participants were encouraged to share their perspectives voluntarily. All their privacy was ensured from others, but not the researchers' board.

3.3. Data analysis

The purpose of this study was to examine the association between sense of belonging, attainment value, curiosity, self-efficacy, and autonomy-supportive learning climates in science-related education. Partial least squares structural equation modeling (PLS-SEM) was conducted using SmartPLS 3.2.9. Measurement and structural models were identified simultaneously.

Table 2. Descriptive statistics and data normality

Var.s	Items	Statements	$\bar{X}$	SD	γ_1	γ_2	λ_i	VIF
Most of the time I studied science courses for a long time....								
Conceptual understanding	CU1	I can choose a method for dealing with the tasks the teacher assigns.	3.749	1.051	-0.596	-0.382	0.682	1.650
	CU2	I can relate the content of each lesson to create new knowledge.	3.533	1.188	-0.372	-0.854	0.680	1.601
	CU3	I can understand the basics of studying a subject or theory.	3.461	1.073	-0.372	-0.512	0.714	1.709
	CU4	I can relate what I have thought to my practice.	3.526	1.125	-0.446	-0.611	0.699	1.764
	CU5	I can agree with the theory, based on practical evidence.	3.628	1.185	-0.551	-0.638	0.665	1.563
	CU6	I can describe the information I have observed from my studies.	3.460	1.194	-0.279	-0.890	0.730	1.783
	CU7	I can find many solutions when I have a problem.	3.461	1.062	-0.379	-0.564	0.687	1.587
	CU8	I can find a reasonable answer to the question.	3.434	1.189	-0.422	-0.687	0.703	1.790
	CU9	I can clarify the reasonableness of my solution or conclusion.	3.109	1.162	-0.169	-0.836	0.719	1.832
	CU10	I can find more relevant information to deepen the understanding.	3.365	1.193	-0.433	-0.730	0.678	1.604
Higher-order understanding	HU1	I can make predictions of phenomena based on specific theories.	2.759	1.173	0.150	-0.727	0.716	1.597
	HU2	I can study or research phenomena based on specific theories or clear pre-planning.	2.912	1.200	-0.009	-0.874	0.818	1.965
	HU3	I can use theory to deduce how the phenomenon varies.	3.007	1.187	-0.040	-0.759	0.794	1.840

	HU4	I can conclude from various factors influencing the phenomenon.	2.838	1.191	0.050	-0.855	0.799	1.864
	HU5	I can form questions through observing phenomena.	3.133	1.241	-0.217	-0.944	0.759	1.614
Practical work	PW1	I can choose materials for the experimental process.	2.491	1.277	0.314	-1.089	0.826	2.618
	PW2	I can figure out how to use the lab materials.	2.480	1.256	0.321	-1.045	0.857	3.245
	PW3	I can figure out how to sample the experimental data.	2.311	1.183	0.520	-0.666	0.830	2.773
	PW4	I can choose the experimental method by pre-setting the experimental results.	2.460	1.218	0.397	-0.787	0.854	2.787
	PW5	I can associate theory and data to conclude the experimental results.	2.473	1.190	0.392	-0.799	0.859	2.820
	PW6	I can try to find a solution if the experimental process is problematic.	2.661	1.307	0.188	-1.145	0.823	2.606
	PW7	I can carefully observe or record the results of the experiment.	2.902	1.364	-0.003	-1.277	0.821	2.511
Everyday application	EA1	I can use theory to interpret phenomena in everyday life.	2.987	1.167	-0.046	-0.878	0.745	1.699
	EA2	I can understand the documents or information I view or read.	3.721	1.101	-0.597	-0.422	0.728	1.729
	EA3	I can interpret the social problems associated with the theory.	3.136	1.214	-0.026	-0.893	0.805	2.055
	EA4	I can repair the items in my life using theories.	2.739	1.318	0.336	-0.979	0.747	2.070
	EA5	I can use theory to solve problems in my life.	3.117	1.266	-0.022	-1.038	0.790	2.262
	EA6	I can learn about any occupation or career that involves scientific skills.	3.534	1.273	-0.566	-0.691	0.673	1.503
	EA7	I can take what I learned from school and put it into practice in my life.	3.632	1.208	-0.461	-0.822	0.741	1.743
Social communication	SC1	I can participate in discussions with others in the class.	3.928	1.119	-0.836	-0.283	0.778	2.211
	SC2	I can help suggest presentations based on what I have learned.	3.486	1.200	-0.307	-0.907	0.789	2.334
	SC3	I can evaluate my peers' work based on what I have learned.	3.369	1.209	-0.236	-0.917	0.791	2.383
	SC4	I can use what I have learned to discuss with peers.	3.801	1.116	-0.645	-0.522	0.841	2.766
	SC5	I can explain my perception to friends in various ways.	3.577	1.178	-0.393	-0.860	0.808	2.594

	SC6	I can share my thoughts with peers.	3.724	1.139	-0.573	-0.571	0.814	2.593
	SC7	I can ask my peers to help explain it again when I am not yet clear about the interpretation.	3.797	1.113	-0.612	-0.571	0.738	2.048
	SC8	I can check my thoughts to understand the opposite of what my peers think, relying on their suggestions.	3.564	1.141	-0.328	-0.830	0.803	2.344
	SC9	I was able to correct my misunderstandings through suggestions from peers.	3.727	1.135	-0.604	-0.504	0.767	2.223
Sense of belonging	SB1	I feel like I have a good relationship with others.	3.933	1.173	-0.880	-0.229	0.761	1.718
	SB2	I feel respected by others.	3.815	1.131	-0.676	-0.436	0.852	2.392
	SB3	I feel cared for by others.	3.492	1.214	-0.367	-0.811	0.800	1.935
	SB4	I feel confident in my teachers.	4.229	1.016	-1.274	0.846	0.679	1.428
	SB5	I feel like being an active student in class.	3.375	1.190	-0.163	-0.878	0.692	1.323
Attainment value	AV1	I think it is important for me to learn the content of each lesson.	3.950	1.055	-0.776	-0.286	0.793	2.020
	AV2	I think it's important for me to be an outstanding student.	3.648	1.199	-0.510	-0.715	0.824	2.327
	AV3	I think it is important for me to learn to be proficient in the subject.	3.904	1.116	-0.838	-0.137	0.857	2.739
	AV4	I think it is important for me to understand the content of each lesson.	3.864	1.096	-0.670	-0.421	0.859	2.850
	AV5	I think it is important for me to identify a solution to the problem rationally.	3.755	1.109	-0.598	-0.466	0.862	2.790
	AV6	I think it is important for me to be a problem-solver.	3.561	1.187	-0.370	-0.876	0.824	2.287
Predicable curiosity	PC1	I have been actively researching information to the best of my ability.	3.542	1.159	-0.442	-0.709	0.792	1.993
	PC2	I tried my best to do the difficult and complicated tasks.	3.766	1.068	-0.592	-0.426	0.819	2.247
	PC3	I consider difficult situations to be awkward or doing tasks as an opportunity to learn or build my abilities.	3.816	1.040	-0.649	-0.275	0.850	2.510
	PC4	I have been looking forward to the experiences I've encountered before in learning or doing tasks to explore myself or things around me.	3.698	1.088	-0.497	-0.552	0.833	2.260
	PC5	I have been looking for opportunities or time to motivate myself to learn more.	3.924	1.035	-0.805	0.013	0.824	2.513

	PC6	I was looking for opportunities or time to strengthen my abilities.	3.904	1.035	-0.773	-0.099	0.834	2.557
Unpredictable curiosity	UC1	I thought positively about the problems I encountered.	3.701	1.094	-0.533	-0.552	0.808	1.974
	UC2	I have explored new things everywhere I've been.	3.692	1.070	-0.510	-0.464	0.844	2.254
	UC3	I like to do things that are likely to be difficult for me.	3.562	1.097	-0.364	-0.658	0.825	2.076
	UC4	I like to try learning or doing something.	3.728	1.054	-0.527	-0.499	0.855	2.420
	UC5	I love to explore unique things.	3.733	1.128	-0.592	-0.503	0.797	2.029
Self-decision provision	SP1	My teacher decides to pair me with someone to learn or work in a team with.	3.404	1.204	-0.388	-0.756	0.759	1.651
	SP2	My teacher allows me to choose assignments according to my passion.	3.209	1.363	-0.122	-1.193	0.824	2.170
	SP3	My teacher puts in a lot of assignments and lets me pick any one.	3.055	1.385	-0.047	-1.223	0.828	2.272
	SP4	My teacher accepts my suggestions when he arranges tasks for me to do.	3.372	1.235	-0.237	-0.960	0.835	2.133
	SP5	My teacher accepts my ideas even if they don't align with his.	3.255	1.211	-0.272	-0.809	0.760	1.698
Acceptance provision	AP1	My teacher allows me to set lesson objectives for learning.	3.423	1.241	-0.403	-0.827	0.781	1.887
	AP2	My teacher allows me to do projects or make presentations about the lessons.	3.429	1.215	-0.314	-0.831	0.824	2.210
	AP3	My teachers allow me to explore various knowledge from various news sources.	3.747	1.107	-0.628	-0.409	0.785	2.014
	AP4	My teacher allows me to work as a team to find solutions to tasks.	3.730	1.122	-0.633	-0.399	0.824	2.326
	AP5	My teacher allows me to do a detailed explanation of the new solution related to the task.	3.428	1.202	-0.317	-0.856	0.857	2.572
	AP6	My teacher allows me to evaluate the results of other peers' tasks or my own.	3.060	1.277	-0.070	-1.026	0.746	1.852

Notes: $\bar{X}$; Mean, SD; Standard deviation, γ_1 ; Skewness, γ_2 ; Excess kurtosis, λ_i ; Outer loading, VIF; Variance inflation factor.

4. Findings

Before assessing the measurement model, data normality was assessed by skewness between +1 and -1 and excess kurtosis close to zero (Hair et al., 2022). As shown in Table 2, the skewness value exceeded the acceptable range, while the excess kurtosis value differed,

confirming that the data is non-normally distributed. In terms of reflective constructs, they were measured by identifying outer loadings greater than 0.70, indicating that each construct explained more than 50% of its variance (Kline, 2016, 2023). In this way, most of the outer loadings are higher than 0.70 to 0.86. This affirms that the observed indicators are well-reflective of the constructs' variance (Table 2). Moreover, convergent validity is assumed when the average variance extracted (AVE) exceeds 0.50, outer loadings exceed 0.50 or 0.70, and construct/composite reliability (CR) exceeds 0.70. As can be seen in Tables 2 and 3, convergent validity is acceptable, respectively. Discriminant validity is confirmed when the heterotrait-monotrait (HTMT) ratio is lower than 0.90, or the threshold of 0.85 (Henseler et al., 2009, 2016), whereas Fornell and Larcker (1981) noted the square roots of AVE are higher than each bivariate correlation. As expressed in Table 3, the HTMT correlation ranged between 0.39 and 0.78, and most of the bivariate correlations were lower than the square roots of AVE, assuming acceptable discriminant validity. Furthermore, to ensure internal consistency, the values for composite reliability, rho_a reliability, and Cronbach's alpha reliability are all greater than 0.70, respectively (Hair et al., 2017). In the same case, all internal consistency reliability was revealed to be more reliable, respectively (Table 3). In summary, model fit is indicated by the Standardized Root Mean Square Residual (SRMR) being close to zero and the Normed Fit Index (NFI) being close to one, which confirms an acceptable fit (Schuberth et al., 2018, 2023). Table 4 shows that the estimated model has an SRMR of 0.06 and an NFI of 0.81, indicating an acceptable fit in the Cambodian high school context.

Table 3. Internal consistency reliability, discriminant, and convergent validity

Constructs	AP	AV	CU	EA	HU	PW	PC	SP	SB	SC	UC
AP	0.80	0.68	0.61	0.62	0.53	0.57	0.71	0.82	0.63	0.64	0.73
AV	0.62	0.84	0.72	0.68	0.55	0.50	0.73	0.59	0.68	0.72	0.72
CU	0.54	0.65	0.70	0.81	0.77	0.63	0.70	0.53	0.69	0.74	0.70
EA	0.54	0.60	0.71	0.75	0.78	0.75	0.67	0.58	0.62	0.78	0.65
HU	0.46	0.48	0.66	0.67	0.78	0.68	0.52	0.50	0.50	0.57	0.56
PW	0.52	0.46	0.58	0.67	0.60	0.84	0.49	0.53	0.43	0.54	0.50
PC	0.64	0.67	0.63	0.60	0.46	0.45	0.83	0.56	0.69	0.70	0.87
SP	0.71	0.53	0.47	0.50	0.43	0.48	0.49	0.80	0.57	0.54	0.61
SB	0.54	0.59	0.59	0.52	0.42	0.39	0.59	0.48	0.76	0.75	0.67
SC	0.58	0.67	0.68	0.70	0.50	0.50	0.64	0.48	0.66	0.79	0.68
UC	0.65	0.65	0.62	0.57	0.49	0.45	0.78	0.53	0.57	0.61	0.83
α	0.89	0.91	0.88	0.87	0.84	0.93	0.91	0.86	0.81	0.93	0.88
ρ_A	0.89	0.92	0.88	0.87	0.84	0.93	0.91	0.86	0.82	0.93	0.89
CR	0.92	0.93	0.90	0.90	0.88	0.94	0.93	0.90	0.87	0.94	0.91
AVE	0.65	0.70	0.48	0.56	0.61	0.70	0.68	0.64	0.58	0.63	0.68

Notes: AP; Acceptance provision, AV; Attainment value, CU; Conceptual understanding, EA; Everyday application, HU; Higher-order understanding, PW; Practical work, PC; Predictable curiosity, SP; Self-decision provision, SB; Sense of belonging, SC; Social communication, UC; Unpredictable curiosity, α ; Cronbach's alpha internal consistency reliability, ρ_A ; rho_A composite reliability, CR; composite/construct reliability, AVE; Average variance extracted. The bold bivariate correlations refer to the Heterotrait-Monotrait ratio (HTMT) of correlations, while the unbolt bivariate correlations refer to the Fornell-Larcker criterion, and the *Italic* values in the center line refer to the square root of AVE.

Table 4. The model fits within the entire model of science education

Model fit	Saturated model	Estimated model
SRMR	.05	0.06
d_ ULS	5.85	9.57
d_ G	1.6	1.79
Chi-Square	6223.37	6593.19
NFI	.82	0.81

In terms of the structural model, variance inflation factors (VIFs) were assessed to reduce multicollinearity, with VIFs kept below 5 or a threshold of 3 (Hair, 2010; Hair et al., 2019). As revealed in Table 2, the VIF values of 1.563 and 3.245 indicate no multicollinearity. The coefficient of determination (R^2) was identified relying on Hair (2014); R^2 values are 0.25 (low), 0.50 (moderate), and 0.75 (excellent). Furthermore, the predictive relevance (Q^2) values are 0.02 (low), 0.15 (medium), and 0.35 (high), indicating that the model demonstrates acceptable out-of-sample performance as assessed by the blindfolding method (Chin, 1998; Geisser, 1974; Henseler et al., 2009; Stone, 1974). Lastly, the path coefficient with bootstrapping over 5000 samples was used, defining 0.10 (low), 0.20 (moderate), and 0.30 (high), following Cohen (2013).

Figure 2 below depicts all significant direct paths in the model. Autonomy-supportive climate dimensions were positively linked to students' motivational attitudes and science-learning self-efficacy. In particular, self-decision and acceptance provision both had significant positive effects on motivational factors (e.g., sense of belonging, attainment value, and curiosity) and on science-learning outcomes (e.g., conceptual understanding, higher-order understanding, everyday application, practical work, and social communication). All significant paths were positive, indicating that higher perceived autonomy-supportive learning climates predict higher motivational factors and science-learning self-efficacy. The strengths of these effects varied: for example, the model explained about 31% of the variance in the sense of belonging ($R^2 = 0.31$), 48% of the attainment value construct ($R^2 = 0.48$), 56% of predictable curiosity ($R^2 = 0.56$), and 54% of unpredictable curiosity ($R^2 = 0.54$). Among the science-learning self-efficacy measures, the explained variance was also substantial (e.g., $R^2 = 0.54$ for conceptual understanding, $R^2 = 0.31$ for higher-order understanding, $R^2 = 0.62$ for social communication and everyday application, and $R^2 = 0.47$ for practical work). These R^2 values indicate that the autonomy climate and motivation variables together explain a large portion of differences in students' self-efficacy in science education. The pattern of results is consistent with motivation theory: autonomy support from teachers enhances students' belonging and perceived value of science, which in turn boosts their confidence in science tasks.

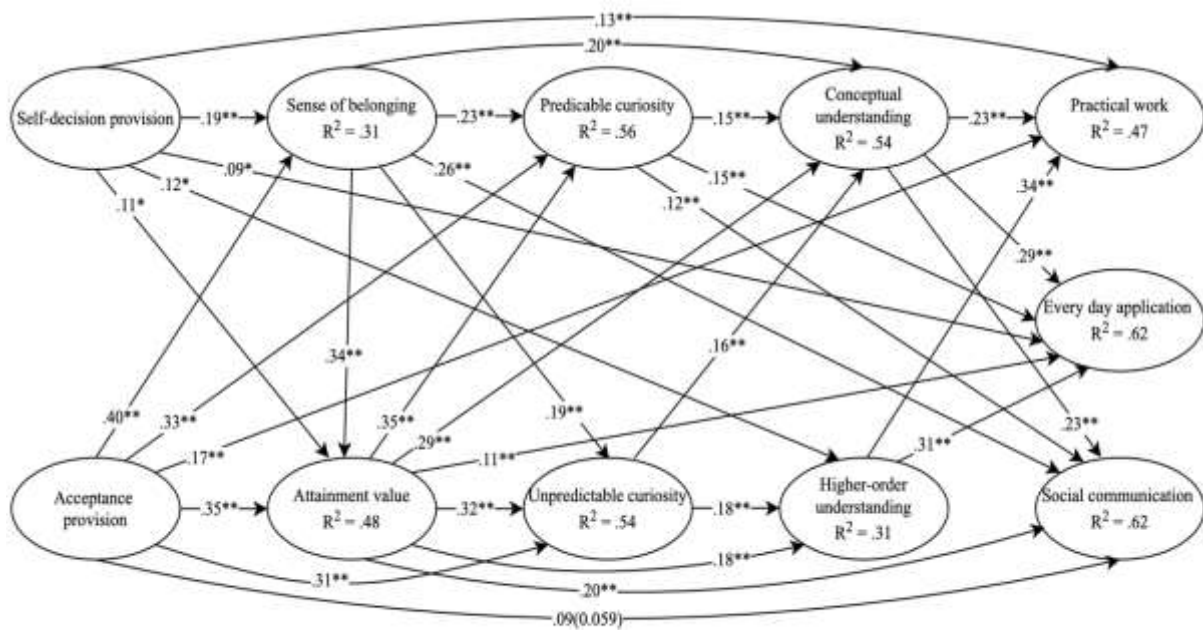


Figure 2. path coefficient of direct effects between autonomy climates, academic motivation and self-efficacy in science education
Note: *p < .05, **p < .01, R²:coefficient of determination, N = 685

Figure 3 below shows the mediated (indirect) pathways through the motivational constructs. Here, each path coefficient represents the product of two links. The direction of all significant indirect effects remained positive, underscoring that autonomy-supportive climates increased science-learning self-efficacy via enhanced motivational factors. For example, the indirect effect of acceptance provisions on conceptual understanding is strongly positive when sense of belonging, attainment value, and science-learning curiosity are enhanced first, indicating that choice and acceptance climates lead to a better conceptual grasp through increased motivation. Moreover, the predictive relevance (Q^2) values for the key mediators are also exposed: sense of belonging ($Q^2 = 0.17$), attainment value ($Q^2 = 0.33$), predictable curiosity ($Q^2 = 0.38$), and unpredictable curiosity ($Q^2 = 0.37$). These exceed zero, confirming that the model has meaningful predictive relevance for these constructs. Similarly, science-learning self-efficacy (e.g., everyday application, higher-order understanding) shows positive indirect paths with non-zero Q^2 values. In sum, the indirect paths reinforce the direct findings: autonomy-supportive climates translate into higher self-efficacy in science largely by first increasing students' sense of belonging, the attainment value, and the curiosity they attach to science. This mediating pattern aligns with prior research showing that a deeper understanding and greater valuing of science drive confidence in science education.

Across the two models, the significant relationships were consistent in sign and generally similar in magnitude. Notably, many associations visible in Figure 2 also appeared (as mediated effects) in Figure 3. For instance, the positive influence of acceptance-provision climates on conceptual understanding was evident in both the direct and mediated models (via sense of belonging, attainment value, and science-learning curiosity), with the indirect coefficient ($\beta = 0.40$) comparable to the direct effect. In general, indirect (mediated) coefficients tended to be similar in size to, or slightly larger than, the direct links alone, reflecting the combined contribution of motivation. For example, while direct paths from climate to some outcomes were modest, the corresponding indirect path (through motivation) was stronger. This comparison suggests that motivation constructs act as key conduits: autonomy-supportive climates affect outcomes both on their own and more substantially by shaping students' sense of belonging and value.

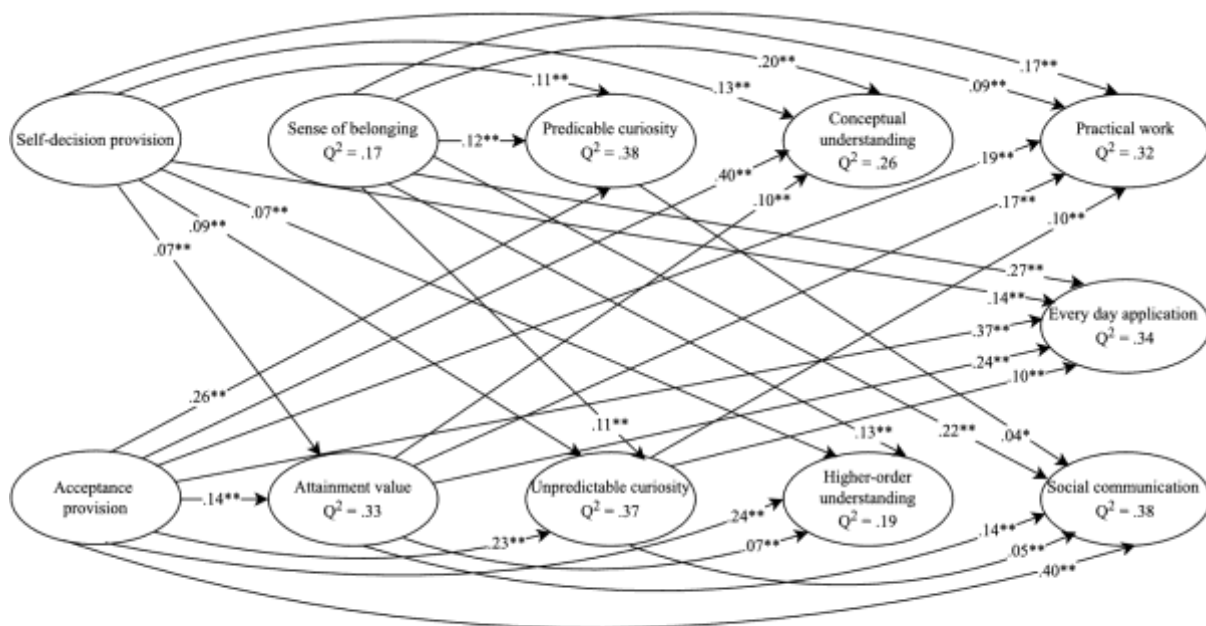


Figure 3. path coefficient of indirect effects between autonomy climates, academic motivation and self-efficacy in science education
Note: * $p < .05$; ** $p < .01$, Q^2 : predictive relevance for path model with blindfolding method, $N = 685$

5. Discussion

Consistent with self-determination theory, our findings show that autonomy-supportive climates significantly enhanced intrinsic motivational resources (e.g., sense of belonging, attainment value, and science-learning curiosity): when teachers offer choice and acknowledge students' perspectives, students reported a higher sense of belonging and curiosity about science (Baumeister & Leary, 1995; Reeve, 2006). Self-decision provision notably predicted a heightened sense of belonging and a more predictable curiosity. In contrast, the acceptance provision significantly predicted higher attainment value (the value students attribute to excelling in science) and unpredictable curiosity (risk-taking). These findings support SDT's assertion that fulfilling students' needs for autonomy promotes intrinsic motivation (e.g., Deci & Ryan, 2000; Ryan & Deci, 2017). Specifically, our model reflects the findings of Patall et al. (2018) and Patall and Zambrano (2019). Likewise, choices and rationales provided by teachers (self-decision support) invite students to seek out novelty and challenges and to feel ownership of their learning, as reflected in the elevated curiosity they observed.

From an expectancy value theory perspective, autonomy-supportive climates also bolstered students' subjective task values. The acceptance provision's perceptions of students link to attainment value, as the personal importance of success in science is consistent with their concepts. When students feel valued and a sense of belonging, they are more likely to value the subject themselves. Eccles and Wigfield (2002) define attainment value as the importance of a task to one's identity, and our findings suggest that autonomy-supportive interactions help cultivate this value. Moreover, autonomy-supportive learning climates (e.g., offering choices and encouraging student voice) create a positive learning environment, which meta-analyses have shown can increase students' expectancy beliefs and task values (Reeve & Cheon, 2021).

In terms of social cognitive theory, prior work has shown that students who approach science with a mastery-oriented attitude by understanding and seeing in a new way or applying concepts exhibit higher self-efficacy for learning science (Bandura, 1982; Pintrich, 2000). The present findings extend this: autonomy-supportive climates foster precisely these positive motivational states, and the resulting boost in self-efficacy translates into better science-learning outcomes, as previous studies have shown (e.g., Black & Deci, 2000; Deci & Ryan,

1985). In line with social-cognitive theory, self-efficacy itself is a strong predictor of achievement, so these links are of practical significance as proposed by Multon et al. (1991) and Zimmerman (2000).

A sense of belonging effectively accelerates attainment value, curiosity, and self-efficacy in conceptual understanding and social communication. In this context, students are more likely to feel a sense of relatedness when in a supportive environment. Previous studies have shown that low science-learning self-efficacy can discourage some students from engaging in the challenging journey of learning science (Aelenei et al., 2020). Additionally, a sense of belonging, through attainment value, is likely to increase students' self-esteem (Eccles & Wigfield, 2002). Furthermore, the link between students' abilities and their curiosity fosters insightful engagement in learning (Amponsah, 2023).

Regarding motivational factors, the model indicated that promoting robust science-learning self-efficacy depends on the personal value a student assigns to science courses. When students perceive science class as integral to their identity and self-worth, they seem to develop the self-confidence to engage and overcome the challenging cases (Bandura, 1982; Breetzke & Bohndick, 2024; Wigfield, 1994). This aligns with SCT and EVT; learners' self-confidence might emerge from valuing a task as necessary (Bandura et al., 1996; Eccles & Wigfield, 2002). As Chan et al. (2023) claimed, a person's belief may grow when the task's value aligns with self-value.

In science learning, curiosity predicts most of the variance in cognitive science self-efficacy, not in science practice self-efficacy. In this sense, students who are curious to seek adequate knowledge seem to increase their cognitive competency rather than apply those concepts in practice. As previous research shows, learners' willingness and tendency to take risks and build knowledge stem from real-world views, moving from concrete to abstract concepts (Beghetto, 2009; Jirout & Klahr, 2012).

Importantly, the enhanced motivation mediated the effect of autonomy-supportive climates on science learning outcomes (e.g., Deci & Ryan, 2000; Niemiec & Ryan, 2009). Both self-decision and acceptance provision were indirectly associated with better outcomes in conceptual understanding, practical work, higher-order understanding, everyday application, and social communication. For instance, the self-decision provision had positive paths to practical and conceptual outcomes, largely through increased belonging and curiosity, whereas the acceptance provision's strongest indirect effects on everyday application and social communication were mediated by higher attainment value and curiosity. In this sense, students who are increasing their curiosity and investing in science promotions are more likely to obtain autonomous provision and supported input (Niemiec & Ryan, 2009; Núñez & León, 2015; Singh & Manjaly, 2022). Furthermore, they strengthen each motivational evaluation by boosting their confidence and becoming more familiar with science tasks, such as applying concepts to everyday problems and communicating ideas (Girelli et al., 2018; Guay et al., 2001).

Overall, the importance of both direct and indirect effects in promoting autonomy-supportive provision and a positive science climate lies in their ability to enhance students' self-motivation and self-confidence, thereby deepening their understanding and emotional engagement with science education.

6. Practical implications for science educators and policy

Our findings indicate specific implications for the science training practicum. At the beginning, science educators should attempt to cultivate autonomous-support classroom climates. Suppositionally, teachers should provide engaging learning activities and tasks, enhance students' goals for science practicum by allowing them to set their own, and actively solicit and appreciate students' perspectives and emotional states. For instance, a teacher might allow them to choose their science project topics and suggest they seek alternative ways to complete the task to demonstrate their understanding. By providing meaningful rationale for learning tasks and acknowledging students' points of view, teachers can help students perceive the science training course as personally relevant and worth mastering. Such practices not only support students' need for autonomy but also increase their valuation of science content (attainment value) and spark curiosity—all of which our model links to better learning. Professional development should train teachers in autonomy-supportive techniques (e.g., adaptive scaffolding, empathetic communication) since research shows these skills can be learned and lead to greater student motivation.

Moreover, this finding also suggests actions for policymakers and curriculum designers. They should prepare student-centered and mastery-oriented learning climates. Science curricula should include inquiry- and project-based learning modules. This provision naturally affords autonomy and relatedness. Policies should limit overly controlling support (e.g., inflexible testing, punitive grading), as it can undermine freedom of decision-making, and instead promote flexible options (e.g., optional assignments, alternative assessment modes), which have been shown to increase engagement. At the system level, autonomous activities in group work might strengthen a sense of belonging, value, curiosity, and self-efficacy, which our findings and motivation theories link to motivational factors.

In sum, educational reforms that endorse autonomy-supportive pedagogy are likely to yield dividends in science learning. By enabling students' self-directed decision-making and validating their perspectives, we help them feel ownership of and interest in science, which translates into deeper understanding and practical skill development.

7. Limitation

This study has several limitations that should be acknowledged. First, the study employed a cross-sectional correlational design, which limits the ability to establish causal relationships among the variables. Therefore, the findings should be interpreted as associations rather than evidence of causation. Future studies employing experimental, causal-comparative, or longitudinal designs are needed to verify the causal pathways proposed in this study. Second, the sample was drawn from a specific geographical and educational context, which may limit the generalizability of the findings to other student populations, regions, or cultural settings. Third, the data were collected through self-report questionnaires, which may be subject to common method bias, social desirability effects, and respondents' subjective perceptions. In addition, self-reported measures may not fully reflect actual academic outcomes, such as students' objective academic performance or standardized test scores. Finally, although the study focused on autonomy-supportive instructional behaviors and related motivational factors, other variables not included in the model, such as teacher characteristics, peer relationships, family support, and school resources, may also influence students' motivation and academic outcomes. Future research should incorporate these factors to provide a more comprehensive understanding of student learning and achievement.

8. Future direction

Building on our findings, the next research should employ longitudinal and experimental designs to test the causal effects of autonomy-supportive practices. Students might be tracked through a longitudinal study to see if sustained autonomy support predicts growth in academic achievement. Furthermore, intervention studies and randomized control policy experiments could manipulate aspects of the autonomy-supportive climates (e.g., teacher training in autonomy support and choice-based curricula). By addressing these questions, future research can more definitively map how autonomy-supportive science classrooms enhance students' motivation, confidence, and ultimately their science learning.

Acknowledgments

The authors wish to convey their profound appreciation to the reviewers and the editing team of CJESS for their evaluation and proofreading of the manuscript. This piece would not have emerged in academic circles without their assistance. Consequently, their contributions are seen as indispensable and beneficial to society at large, particularly within the academic community of research and publication.

Conflict of interest

No potential conflict of interest was reported by the authors.

Funding

The authors received no financial support for the study, authorship, and/or publication of this study.

Declaration of AI usage

The authors used Grammarly to polish the language in some parts of the article. However, they declared that the article's content is entirely theirs and not generated by any means.

References

- Aelenei, C., Martinot, D., Sicard, A., & Darnon, C. (2020). When an academic culture based on self-enhancement values undermines female students' sense of belonging, self-efficacy, and academic choices. *The Journal of Social Psychology, 160*(3), 373–389. <https://doi.org/10.1080/00224545.2019.1675576>
- Amponsah, M. O. (2023). Personality traits mediating sense of belonging and science learning curiosity among students in Ghana. *Education Research International, 2023*, Article 6834304, 1–9. <https://doi.org/10.1155/2023/6834304>
- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37*(2), 122–147. <https://doi.org/10.1037/0003-066X.37.2.122>
- Bandura, A., & Wessels, S. (1994). Self-efficacy. In V. S. Ramachandran (Ed.), *Encyclopedia of human behavior* (Vol. 4, pp. 71–81). Academic Press.
- Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (1996). Multifaceted impact of self-efficacy beliefs on academic functioning. *Child Development, 67*(3), 1206–1222. <https://doi.org/10.2307/1131888>
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. W. H. Freeman.
- Banilower, E., Cohen, K., Pasley, J., & Weiss, I. (2010). *Effective science instruction*. Center on Instruction.

- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117(3), 497–529. <https://doi.org/10.1037/0033-2909.117.3.497>
- Beghetto, R. A. (2009). Correlates of intellectual risk-taking in elementary school science. *Journal of Research in Science Teaching*, 46(2), 210–223. <https://doi.org/10.1002/tea.20270>
- Behling, O., & Law, K. S. (2000). *Translating questionnaires and other research instruments: Problems and solutions*. SAGE Publications.
- Black, A. E., & Deci, E. L. (2000). The effects of instructors' autonomy support and students' autonomous motivation on learning organic chemistry: A self-determination theory perspective. *Science Education*, 84(6), 740–756. [https://doi.org/10.1002/1098-237X\(200011\)84:6<740::AID-SCE4>3.0.CO;2-3](https://doi.org/10.1002/1098-237X(200011)84:6<740::AID-SCE4>3.0.CO;2-3)
- Breetzke, J., & Bohndick, C. (2024). Expectancy-value interactions and dropout intentions in higher education: Can study values compensate for low expectancies? *Motivation and Emotion*, 48(5), 700–713. <https://doi.org/10.1007/s11031-024-10088-9>
- Britner, S. L., & Pajares, F. (2006). Sources of science self-efficacy beliefs of middle school students. *Journal of Research in Science Teaching*, 43(5), 485–499. <https://doi.org/10.1002/tea.20131>
- Bybee, R. W. (2013). *The case for STEM education: Challenges and opportunities*. National Science Teachers Association.
- Chan, S., Maneewan, S., & Koul, R. (2023). An examination of the relationship between the perceived instructional behaviors of teacher educators and pre-service teachers' learning motivation and teaching self-efficacy. *Educational Review*, 75(2), 264–286. <https://doi.org/10.1080/00131911.2021.1916440>
- Chang, H.-P., Chen, C.-C., Guo, G.-J., Cheng, Y.-J., Lin, C.-Y., & Jen, T.-H. (2011). The development of a competence scale for learning science: Inquiry and communication. *International Journal of Science and Mathematics Education*, 9(5), 1213–1233. <https://doi.org/10.1007/s10763-010-9256-x>
- Cheng, C., & Li, F. (2024). Ecosystem restoration and management based on nature-based solutions in China: Research progress and representative practices. *Nature-Based Solutions*, 6, Article 100176. <https://doi.org/10.1016/j.nbsj.2024.100176>
- Chin, W. W. (1998). The partial least squares approach to structural equation modeling. In G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 295–336). Lawrence Erlbaum Associates.
- Cohen, J. (2013). *Statistical power analysis for the behavioral sciences* (Rev. ed.). Routledge. <https://doi.org/10.4324/9780203771587>
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Springer. <https://doi.org/10.1007/978-1-4899-2271-7>
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- Di Leo, I., Muis, K. R., Singh, C. A., & Psaradellis, C. (2019). Curiosity... confusion? Frustration! The role and sequencing of emotions during mathematics problem solving. *Contemporary Educational Psychology*, 58, 121–137. <https://doi.org/10.1016/j.cedpsych.2019.03.001>
- Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology*, 53(1), 109–132. <https://doi.org/10.1146/annurev.psych.53.100901.135153>
- Eccles, J. S., O'Neill, S. A., & Wigfield, A. (2005). Ability self-perceptions and subjective task values in adolescents and children. In K. A. Moore & L. H. Lippman (Eds.),

- What do children need to flourish? Conceptualizing and measuring indicators of positive development* (pp. 237–249). Springer. https://doi.org/10.1007/0-387-23823-9_15
- Engel, S. (2011). Children's need to know: Curiosity in schools. *Harvard Educational Review*, 81(4), 625–645. <https://doi.org/10.17763/haer.81.4.h054131316473115>
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50. <https://doi.org/10.1177/002224378101800104>
- Fouts, J. T., & Myers, R. E. (1992). Classroom environments and middle school students' views of science. *The Journal of Educational Research*, 85(6), 356–361. <https://doi.org/10.1080/00220671.1992.9941138>
- Fraschini, N., & Tao, Y. (2023). How epistemic anxiety and curiosity link perceived value and intended efforts in the language classroom. *Annual Review of Applied Linguistics*, 43, 23–40. <https://doi.org/10.1017/S0267190523000041>
- Freeman, B., Marginson, S., & Tytler, R. (2019). An international view of STEM education. In A. Sahin & M. J. Mohr-Schroeder (Eds.), *STEM education 2.0* (pp. 350–363). Brill. https://doi.org/10.1163/9789004405400_019
- Freeman, T. M., Anderman, L. H., & Jensen, J. M. (2007). Sense of belonging in college freshmen at the classroom and campus levels. *The Journal of Experimental Education*, 75(3), 203–220. <https://doi.org/10.3200/JEXE.75.3.203-220>
- Gabel, D. L. (Ed.). (1994). *Handbook of research on science teaching and learning*. Macmillan.
- Geisser, S. (1974). A predictive approach to the random effect model. *Biometrika*, 61(1), 101–107. <https://doi.org/10.1093/biomet/61.1.101>
- Girelli, L., Alivernini, F., Lucidi, F., Cozzolino, M., Savarese, G., Sibilio, M., & Salvatore, S. (2018). Autonomy supportive contexts, autonomous motivation, and self-efficacy predict academic adjustment of first-year university students. *Frontiers in Education*, 3, Article 95. <https://doi.org/10.3389/feduc.2018.00095>
- Goodenow, C. (1993). The psychological sense of school membership among adolescents: Scale development and educational correlates. *Psychology in the Schools*, 30(1), 79–90. [https://doi.org/10.1002/1520-6807\(199301\)30:1<79::AID-PITS2310300113>3.0.CO;2-X](https://doi.org/10.1002/1520-6807(199301)30:1<79::AID-PITS2310300113>3.0.CO;2-X)
- Guay, F., Boggiano, A. K., & Vallerand, R. J. (2001). Autonomy support, intrinsic motivation, and perceived competence: Conceptual and empirical linkages. *Personality and Social Psychology Bulletin*, 27(6), 643–650. <https://doi.org/10.1177/0146167201276001>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modeling (PLS-SEM)*. SAGE.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Prentice Hall.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). SAGE.
- Hair, J. F., Hollingsworth, C. L., Randolph, A. B., & Chong, A. Y. L. (2017). An updated and expanded assessment of PLS-SEM in information systems research. *Industrial Management & Data Systems*, 117(3), 442–458. <https://doi.org/10.1108/IMDS-04-2016-0130>
- Hattie, J. (2008). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge. <https://doi.org/10.4324/9780203887332>

- Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS path modeling in new technology research: Updated guidelines. *Industrial Management & Data Systems*, 116(1), 2–20. <https://doi.org/10.1108/IMDS-09-2015-0382>
- Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. In R. R. Sinkovics & P. N. Ghauri (Eds.), *Advances in international marketing* (Vol. 20, pp. 277–319). Emerald Group Publishing Limited. [https://doi.org/10.1108/S1474-7979\(2009\)0000020014](https://doi.org/10.1108/S1474-7979(2009)0000020014)
- Jirout, J., & Klahr, D. (2012). Children’s scientific curiosity: In search of an operational definition of an elusive concept. *Developmental Review*, 32(2), 125–160. <https://doi.org/10.1016/j.dr.2012.04.002>
- Kashdan, T. B., Gallagher, M. W., Silvia, P. J., Winterstein, B. P., Breen, W. E., Terhar, D., & Steger, M. F. (2009). The curiosity and exploration inventory-II: Development, factor structure, and psychometrics. *Journal of Research in Personality*, 43(6), 987–998. <https://doi.org/10.1016/j.jrp.2009.04.011>
- Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). Guilford Press.
- Kline, R. B. (2023). *Principles and practice of structural equation modeling* (5th ed.). Guilford Press.
- Lederman, N. G., & Lederman, J. S. (2019). Teaching and learning nature of scientific knowledge: Is it déjà vu all over again? *Disciplinary and Interdisciplinary Science Education Research*, 1(1), Article 6. <https://doi.org/10.1186/s43031-019-0002-0>
- Lewis, K. L., Stout, J. G., Pollock, S. J., Finkelstein, N. D., & Ito, T. A. (2016). Fitting in or opting out: A review of key social-psychological factors influencing a sense of belonging for women in physics. *Physical Review Physics Education Research*, 12(2), 020110. <https://doi.org/10.1103/PhysRevPhysEducRes.12.020110>
- Lin, T.-J., & Tsai, C.-C. (2013). A multi-dimensional instrument for evaluating Taiwanese high school students’ science learning self-efficacy in relation to their approaches to learning science. *International Journal of Science and Mathematics Education*, 11(6), 1275–1301. <https://doi.org/10.1007/s10763-012-9376-6>
- Lindholm, M. (2018). Promoting curiosity? Possibilities and pitfalls in science education. *Science & Education*, 27(9–10), 987–1002. <https://doi.org/10.1007/s11191-018-0015-7>
- Litman, J. (2005). Curiosity and the pleasures of learning: Wanting and liking new information. *Cognition and Emotion*, 19(6), 793–814. <https://doi.org/10.1080/02699930541000101>
- Loewenstein, G. (1994). The psychology of curiosity: A review and reinterpretation. *Psychological Bulletin*, 116(1), 75–98. <https://doi.org/10.1037/0033-2909.116.1.75>
- Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. *Journal of Counseling Psychology*, 38(1), 30–38. <https://doi.org/10.1037/0022-0167.38.1.30>
- Niemi, H. (2002). Active learning—A cultural change needed in teacher education and schools. *Teaching and Teacher Education*, 18(7), 763–780. [https://doi.org/10.1016/S0742-051X\(02\)00042-2](https://doi.org/10.1016/S0742-051X(02)00042-2)
- Niemiec, C. P., & Ryan, R. M. (2009). Autonomy, competence, and relatedness in the classroom: Applying self-determination theory to educational practice. *Theory and Research in Education*, 7(2), 133–144. <https://doi.org/10.1177/1477878509104318>
- Núñez, J. L., & León, J. (2015). Autonomy support in the classroom: A review from self-determination theory. *European Psychologist*, 20(4), 275–283. <https://doi.org/10.1027/1016-9040/a000234>

- Organisation for Economic Co-operation and Development. (2018). *Education at a glance 2018: OECD indicators*. OECD Publishing. <https://doi.org/10.1787/eag-2018-en>
- Patall, E. A., & Zambrano, J. (2019). Facilitating student outcomes by supporting autonomy: Implications for practice and policy. *Policy Insights from the Behavioral and Brain Sciences*, 6(2), 115–122. <https://doi.org/10.1177/2372732219862572>
- Patall, E. A., Steingut, R. R., Vasquez, A. C., Trimble, S. S., Pituch, K. A., & Freeman, J. L. (2018). Daily autonomy supporting or thwarting students' motivation and engagement in the high school science classroom. *Journal of Educational Psychology*, 110(2), 269–288. <https://doi.org/10.1037/edu0000214>
- Pintrich, P. R. (2000). The role of goal orientation in self-regulated learning. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 451–502). Elsevier. <https://doi.org/10.1016/B978-012109890-2/50043-3>
- Pov, S., Kawai, N., Chey, R., Khut, S., & Nov, S. (2024). Examining factors influencing students to leave science classes in Cambodia: A two-level hierarchical linear modeling. *Asia Pacific Education Review*, 25(1), 117–130. <https://doi.org/10.1007/s12564-024-09928-7>
- Reeve, J. (2006). Teachers as facilitators: What autonomy-supportive teachers do and why their students benefit. *The Elementary School Journal*, 106(3), 225–236. <https://doi.org/10.1086/501484>
- Reeve, J., & Cheon, S. H. (2021). Autonomy-supportive teaching: Its malleability, benefits, and potential to improve educational practice. *Educational Psychologist*, 56(1), 54–77. <https://doi.org/10.1080/00461520.2020.1862657>
- Reyes, M. R., Brackett, M. A., Rivers, S. E., White, M., & Salovey, P. (2012). Classroom emotional climate, student engagement, and academic achievement. *Journal of Educational Psychology*, 104(3), 700–712. <https://doi.org/10.1037/a0027268>
- Rossing, B. E., & Long, H. B. (1981). Contributions of curiosity and relevance to adult learning motivation. *Adult Education Quarterly*, 32(1), 25–36. <https://doi.org/10.1177/074171368103200102>
- Ruos, D., Em, S., Bamrungsin, P., & Khampirat, B. (2025). The impact of instructional behaviors on learning motivation via subjective task value in high school students in Cambodia. *Scientific Reports*, 15(1), Article 17344. <https://doi.org/10.1038/s41598-025-02147-z>
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25(1), 54–67. <https://doi.org/10.1006/ceps.1999.1020>
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Press.
- Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology*, 61, Article 101860. <https://doi.org/10.1016/j.cedpsych.2020.101860>
- Schuberth, F., Henseler, J., & Dijkstra, T. K. (2018). Confirmatory composite analysis. *Frontiers in Psychology*, 9, Article 2541. <https://doi.org/10.3389/fpsyg.2018.02541>
- Schuberth, F., Rademaker, M. E., & Henseler, J. (2023). Assessing the overall fit of composite models estimated by partial least squares path modeling. *European Journal of Marketing*, 57(6), 1678–1702. <https://doi.org/10.1108/EJM-08-2020-0586>
- Singh, A., & Manjaly, J. A. (2022). Using curiosity to improve learning outcomes in schools. *SAGE Open*, 12(1), Article 21582440211069392. <https://doi.org/10.1177/21582440211069392>

- Stefanou, C. R., Perencevich, K. C., DiCintio, M., & Turner, J. C. (2004). Supporting autonomy in the classroom: Ways teachers encourage student decision making and ownership. *Educational Psychologist*, 39(2), 97–110. https://doi.org/10.1207/S15326985EP3902_2
- Stone, M. (1974). Cross-validation and multinomial prediction. *Biometrika*, 61(3), 509–515. <https://doi.org/10.1093/biomet/61.3.509>
- Strayhorn, T. L. (2018). *College students' sense of belonging: A key to educational success for all students* (2nd ed.). Routledge. <https://doi.org/10.4324/9781315297293>
- Trautwein, U., Marsh, H. W., Nagengast, B., Lüdtke, O., Nagy, G., & Jonkmann, K. (2012). Probing for the multiplicative term in modern expectancy–value theory: A latent interaction modeling study. *Journal of Educational Psychology*, 104(3), 763–777. <https://doi.org/10.1037/a0027470>
- Trujillo, G., & Tanner, K. D. (2014). Considering the role of affect in learning: Monitoring students' self-efficacy, sense of belonging, and science identity. *CBE—Life Sciences Education*, 13(1), 6–15. <https://doi.org/10.1187/cbe.13-12-0241>
- Tsai, C.-C., Ho, H. N. J., Liang, J.-C., & Lin, H.-M. (2011). Scientific epistemic beliefs, conceptions of learning science, and self-efficacy of learning science among high school students. *Learning and Instruction*, 21(6), 757–769. <https://doi.org/10.1016/j.learninstruc.2011.05.002>
- Uzuntiryaki, E., & Çapa Aydın, Y. (2009). Development and validation of the chemistry self-efficacy scale for college students. *Research in Science Education*, 39(4), 539–551. <https://doi.org/10.1007/s11165-008-9093-x>
- Wang, Y. L., Liang, J.-C., & Tsai, C.-C. (2018). Cross-cultural comparisons of university students' science learning self-efficacy: Structural relationships among factors within science learning self-efficacy. *International Journal of Science Education*, 40(6), 579–594. <https://doi.org/10.1080/09500693.2017.1315780>
- Ward, M. (2018). *PISA for development: Results in focus* (PISA in Focus No. 91). OECD Publishing. <https://doi.org/10.1787/c094b186-en>
- Wigfield, A. (1994). Expectancy–value theory of achievement motivation: A developmental perspective. *Educational Psychology Review*, 6(1), 49–78. <https://doi.org/10.1007/BF02209024>
- Wigfield, A., & Eccles, J. S. (2000). Expectancy–value theory of achievement motivation. *Contemporary Educational Psychology*, 25(1), 68–81. <https://doi.org/10.1006/ceps.1999.1015>
- Zimmerman, B. J. (2000). Self-efficacy: An essential motive to learn. *Contemporary Educational Psychology*, 25(1), 82–91. <https://doi.org/10.1006/ceps.1999.1016>

Bridging empires, weaving civilizations: Cambodia as a nexus of Asian cultural diplomacy between India and China

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Article info

Article history

Received: February 25, 2026

Revised: April 19, 2026

Accepted: June 2, 2026

Keywords

Cambodia-China-India relations

Cultural diplomacy

Soft power

Civilizational exchange

Hybridization

Heritage diplomacy

Article type

Narrative review

Abstract

This paper examines Cambodia's historical role as a civilizational intermediary between India and China and its importance today, aiming to understand its diplomatic function within a system of civilizational trade and its role as the ultimate civilizational mediator. Using qualitative and historical-comparative research techniques, the author examines archival and inscriptional sources, as well as ethnographic interviews, to identify patterns of cultural diffusion, hybridization, and historical continuity. The author discovers that a distinct Khmer civilization emerged from Cambodia's synthesis of Indian metaphysical ideals and Chinese models of ethical governance. This synthesis helped Cambodia achieve a balance of spirituality and governance. It turned it into the center of Asian cultural diplomacy, where temples, language, and art became tools of symbolic diplomacy. Negotiated soft power, culturally supportive diplomacy, and diplomatic fencing of cultural heritage continue the same partnerships today as the ancient routes of the Belt and Road Initiative and the Mekong-Ganga Cooperation. The author argues that diplomacy is a civilizational function and that it offers a form of safe conduct, free of hostility, to a civilization's borders and provides safe refuge from the dangers of the hostile world. The author suggests the civilizational approach to soft power, cultural diplomacy, and civilizational international relations, and the adaptive hybridity of Cambodia offers a model for sustainable intercultural relations in contemporary Asia.

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1. Introduction

Cambodia, which lies in the middle of Southeast Asia, has always been at the crossroads of three interacting centres of civilizational development: the Indic and the Sinic. From the seaborne networks of the Funan Kingdom (1st–6th century CE) to the cosmopolitan Angkor Empire (9th–15th century CE), Cambodians were active participants, not a passive civilisation, of the integral intersection of Indian and Chinese civilisations (Heng & Schottenhammer, 2024; Stark & Manguin, 2023). Cohen (2023) views the evolution of Cambodian society as a dual inheritance: Indian metaphysical cosmology, expressed through the Hindu-Buddhist syncretic religion, and the Chinese model of administration with its Confucian irrationality. This dual inheritance, as rightly identified, “produced a political culture both devotional and

bureaucratic, divine yet pragmatic,” and is testimony to the early Asian civilizational model of the synergistic coexistence of multiple streams of civilisation (Cohen, 2023, p. 145).

Ray (2020) argues that the maritime Silk Route that connects India, Southeast Asia, and China not only transports goods like silk, ceramics, and spices, but also serves as an artery of civilisation, organising the flow of religions, art, and diplomacy. He posits that Funan and, subsequently, Angkor served as intermediate empires of mediation, in which Indian religious ideas and Chinese imperial ethical thought gave rise to a new, distinct Khmer perspective. When it comes to this continuum, archaeology speaks as well. Along with his contemporaries (Lavy, 2023), in his study of pre-Angkorian sculptures, he noted that Khmer art of the time demonstrated a stylised assimilation of Indic and Chinese influences. The balance between the two systems, contrary to what many believe, suggests mutual assimilation. The same thing goes for the records in the inscriptions of Óc Eo and Angkor Borei (Heng & Schottenhammer, 2024). The presence and mobility of Chinese traders and the Buddhist missionaries reinforce the idea that religion and commerce were intertwined. Using the terminology of cultural geography, Hannerz (1992) refers to these places as transcultural zones, where the circulation of meanings, practices, and power creates new, hybrid cultural forms. Given its location on both the overland and maritime Silk Routes, Cambodia was, and still is, a transcultural zone of sorts. Because of its adaptability in communication, ritual, and architecture, as well as in the sphere of civilizational diplomacy, Cambodia acquired the civilizational attributes of both dominant Asian powers—India and China—and subsequently transformed them into a uniquely Khmer set of civilizational attributes.

The profound nature of Cambodia’s ancient cultural diplomacy and the modern significance of its history cannot be overstated. Nye (2004) articulated soft power as the ability to influence others without coercive means, but rather through attraction and shared value. This is the concept that connects contemporary international relations to cultural diplomacy in ancient Cambodia. China’s Belt and Road Initiative (BRI) and India’s Mekong-Ganga Cooperation (MGC) are modern examples that reflect the same civilisation-based inter-relational patterns as those of ancient Cambodia. During this time, Cambodia’s historical significance as “Asia’s civilizational hinge” is still very relevant. The country shows that cultural adaptability, political pluralism, and political evolution are not simply legacies from the past but are actively utilised as strategic elements of diplomacy that interweave historical memory with contemporary soft power and heritage cooperation (Bunthorn, 2022).

Although research on Cambodia’s bilateral relations with India or China has produced a sizeable body of literature, studies that compare them and consider the overlapping civilizational impacts remain few (Po & Sims, 2022). Cambodia experienced civilizational influences from both India and China; Chheang (2021) notes that, like the rest of the world, in the 21st century, Cambodia’s economy has aligned with China’s, but civilizational influences are mostly absent from their work. Likewise, the study of Indianization has concentrated on the religious and artistic (Henderson, 2016), but has not explored how these Indic models of governance interacted with Sinic models during Cambodia’s medieval and post-Angkorian periods. According to Hendrickson et al. (2023), Cambodia’s archaeological records show layered Indic, Sinic, and indigenous civilisations. However, the majority of international relations scholarship treats each of these as separate civilisations and cultures, rather than as integrated or mutually reinforcing civilizational processes. This separation reveals both a theoretical blind spot and a practical constraint, particularly in cultural diplomacy and soft power scholarship.

Analyses of Cambodia's cultural relations with India and China often simplistically reduce cultural diplomacy to either economic dependency or geopolitical imperative. Gill and Huang (2023) remark that current comments about Chinese soft power leave out its Confucian moral persuasion, while Hall and Whitmore (2020) pointed out that cultural diplomacy with India remains anchored in its ancient, civilizational, religious, and linguistic pluralism. This study, therefore, seeks to move beyond these interpretive silos by locating the ancient cultural imprints that have transformed into modern diplomatic practices. Theoretically, this study counters the linear diffusionist model that views Cambodia as a mere receiver of external impulses, proposing instead, through a constructivist approach (Wendt, 1999), that Cambodia has, through active, albeit selective, formation of composite political and cultural structures, self-constructed hybrid political and cultural identities. In practice, it addresses the lack of an integrated approach that incorporates historical cultural flows and contemporary diplomatic practices. In this regard, the research is an attempt at apprehending, in a more refined way, civilisation as diplomacy, which has, to this point, been less than fully articulated.

This study aims to explore, within the time span of recorded history, Cambodia's role as a civilizational bridge in the cultural exchange and communication of the Indian and the Chinese, and to analyse how the religious, artistic, and political components of the two civilisations were disseminated, adapted, and transformed into sustainable tools of diplomacy. This study, along the lines of Rogers's (2003) cultural diffusion and Pieterse's (2019) cultural hybridity, seeks to position Cambodia's historical development as selective internalisation and reinterpretation of the alien, as opposed to simply being a recipient and copy of the technology. Therefore, the research aims to:

1. Identify and describe the historical pathways through which Indian and Chinese cultural components entered Cambodian civilisation.
2. Analyse how Cambodia adapted and transformed these components into innovative political and religious structures.
3. Examine the cultural components that meld Cambodia's present-day diplomatic identity with ASEAN, China, and India.

From this perspective, the study offers a defence of the civilizational nature of diplomacy, one that anchors itself in the long-standing, politically stable, and culturally integrated diplomacy. For this study, the following research questions will guide it:

1. What cultural and institutional gateways, if any, have historically connected India and China to Cambodia?
2. How did the Khmer religious, political, and artistic traditions impact the reception and assimilation of the above influences?
3. How, if at all, do Cambodia's contemporary diplomacy and the Chinese Belt and Road Initiative, as well as the cultural diplomacy of India in Southeast Asia, reflect the above-mentioned civilizational legacies?

These questions help fill current gaps in the historiography and explain how ancient inter-civilizational relations, particularly in the context of contemporary soft power, are reconfigured. The study's originality stems from reconceptualising cultural diplomacy as intersystem and civilizational. Placing Cambodia not only as a peripheral receiver of culture and power, this study also shifts the debate to the centre of the evolving Eurocentric systems of international relations and soft power.

2. Literature review

2.1 Diffusion of culture theory

The first theoretical pillar, the Diffusion of Culture Theory, as developed by Rogers (2003) in *Diffusion of Innovations*, describes the systematic and structured interdisciplinary approach to the diffusion of cultural ideas, technological advances, and institutional practices across various societies as a function of established communication channels and social hierarchies. Rogers (2003) argues that diffusion is not a random process; it is facilitated by social elites and by social prestige and trust. When focusing on Southeast Asia, Hall and Whitmore (2020) attempted to expand the maritime diffusion theory by stating that cultural diffusion of India, China, and the Mekong region was mainly through trade guilds, monastic circuits, and diplomatic missions.

Regarding Cambodia, diffusion theory explains how elite-mediated exchange channels, royal delegates, Brahmanic scholars, Buddhist monk networks, and merchant networks contributed to the diffusion of religious, linguistic, and political ideas. The Funan polity is a case in point to illustrate this: it received Indian cosmological ideas of dharma, moral ruler, and mandala (sacred monarchy) through emissaries and pilgrims, while it also assimilated Chinese administrative practices through tributary missions to the Tang and Song dynasty courts (Heng & Schottenhammer, 2024; Ray, 2020).

Despite Rogers's (2003) assertion that diffusion of innovation does not entail wholesale adoption, it speaks to what the Cambodian elite did in constructing a legitimate, selective appropriation of what diffusion offered in a culturally predictive way. This makes Cambodia a cultural node as a place of invention and diffusion of Indian and Chinese civilizational frameworks refracted through an indigenous Khmer lens, resulting in unique socio-political constructs in the absence of mere cultural influences.

2.2 Soft power and cultural diplomacy

The second framework is based on Joseph Nye's (2004) formulation of soft power, where the influence of a country can be formulated not by military force or economic means, but through attraction. In the case of Cambodia, both India and China, in their historical context, have, through their religious and educational exchanges, closed the gap of modern diplomacy through the projection of soft power.

Nye (2004) indicates that soft power depends on spreading certain universal values and winning appreciation for culture. In premodern Asia, value systems that aided non-violent state control included the Confucian ethics of China and the Buddhist teachings of India. Gill and Huang (2023) build on this when they describe cultural diplomacy, the positive perception of education, religion, and the arts, and define it as an operational component of soft power. For the Cambodian case, these dynamics are most pronounced. In Confucian soft power, the Cambodian court and bureaucracy (Chan, 1996) were influenced by Chinese hierarchical and ritual propriety. Indian soft power, in contrast, operated through Buddhist monastic networks that incorporated moral governance and compassion as politically integrative virtues (Bunthorn, 2023). The Angkorian temples are diplomatic and archaeological representations of soft power, depicting Hindu and Buddhist iconography, ethnocentric to the cosmogonic foreign emissary (Lavy, 2023) of the temples. Furthermore, in today's diplomatic landscape, these ancient mechanisms take on new forms in the Confucius Institutes and the ICCR cultural centres in Phnom Penh, which continue to showcase, respectively, Chinese and Indian soft

power, civilizational legacy, and modern foreign policy. Therefore, the soft power paradigm not only encompasses Cambodia's ancient civilizational interactions but also invites comparison with today's cultural diplomacy, which reiterates the legacy of influence through attraction.

2.3 Hybridisation and localisation

While diffusion and soft power capture the influence of culture, Hybridisation and Localisation Theory focus on how externally sourced ideas and practices are absorbed, transformed, and localised by a society. Hannerz (1992) speaks of cultural creolization, where the global cultural flows are interpreted through a local lens and reconstituted into new hybrid forms. Pieterse (2019) has further elaborated this as a global *mélange*, in which the synthesis of mutually interacting cultures is produced rather than dominance or subordination.

In Cambodia, this theoretical approach clarifies the Khmerisation of the Indic and the Sinic influences. The Khmer polities did not simply assimilate and adopt the Hindu-Buddhist doctrines and the Chinese bureaucratic systems in their entirety. They localised and integrated them into their own indigenous worldviews, languages, and arts. The Devarāja cult has been viewed as an Indian import; however, it is a Khmer amalgamation of Indian divine kingship and local ancestor worship (Stark & Manguin, 2023). The same is true of the ethical systems of Confucianism, which were incorporated into the Khmer Buddhist system and local Khmer systems as a moral code of filial piety, respect for the social hierarchy, and the harmony of the community (Chan, 1996; Deth, 2020). The architectural embodiment of this hybridisation is found in the temples of Bayon and Angkor Wat, where the Indic fusion of the essence of cosmic order (mandala) is integrated with the Chinese system of structure and geomantic harmony (Lavy, 2023) of the Bayon and Angkor Wat temples. Politically, the Khmers are said to have expressed their political identity and awareness through the hybridisation of the Khmer script with Sanskrit and Pali, and with the local phonetic systems of the Khmers.

Instead, as Pieterse (2019) explains, hybridisation is creative negotiation, where a culture like Cambodia's can maintain a distinct cultural self-definition while engaging with a wider transregional cultural system. Hybridisation theory, therefore, interprets Cambodia's civilizational history as a history of selective appropriation and creative recompositing, which serves as the basis for Cambodia's cultural diplomacy and the politics of identity.

2.4 Constructivist international relations theory

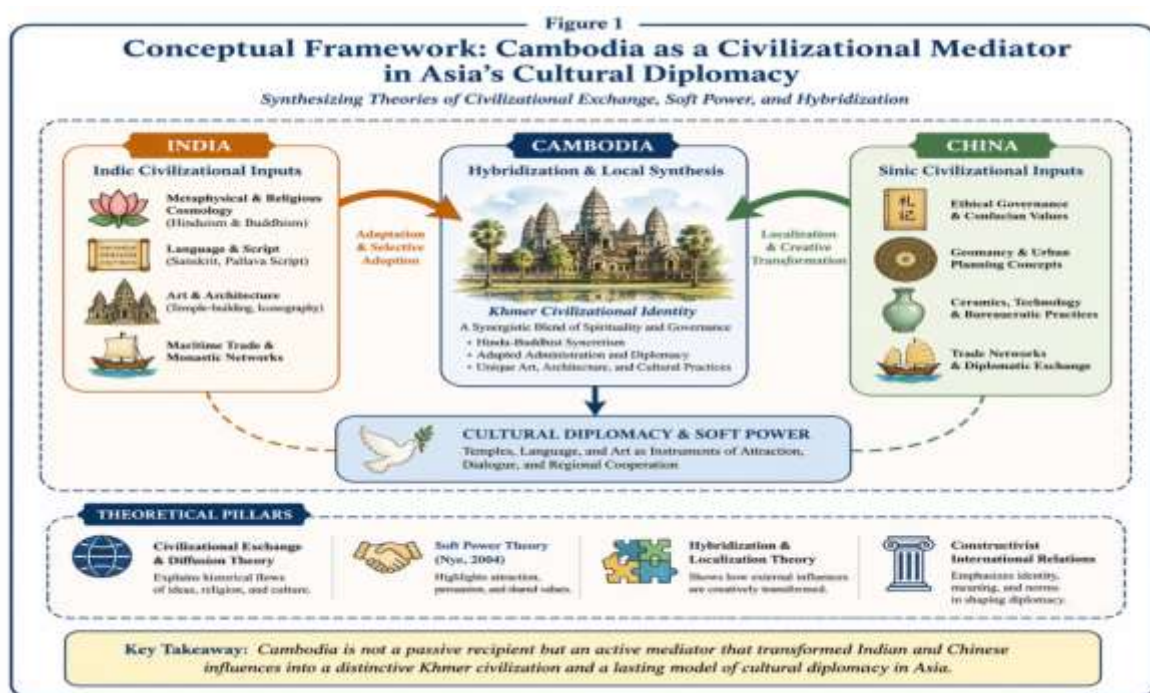
The fourth framework is Constructivist International Relations Theory, which places cultural transmission in the context of identity and intersubjective understanding. In Wendt's view (1999), the international system is "what states make of it", which implies that the exercise of power and the regulation of states' behaviour are not solely determined by materialist considerations, but rather by ideational constructions, shared norms, and collective meanings. In this vein, Katzenstein (1996) argues that the cultural and institutional framework is central to the formulation of regional security and diplomacy, particularly in Asia, where the politics of history, identity, and ethics are still relevant to the articulation of public policy.

Constructivism, in the study of Cambodia's regional diplomacy, illustrates how a state's civilizational legacy shapes its self-perception and diplomatic behaviour. For over a millennium, how Cambodia sees itself, as the inheritor of the Indian spiritual civilisation, and as a participant in the Chinese world order, has influenced how it does regional politics. Cambodia's foreign policy, as noted by Po and Sims (2022), has swung from one side of the

pendulum to the other, which, as a result of Cambodia's long self-definition as a regional intermediary and a cultural one at that, is a direct lack of geopolitical subordination. The memory of the Buddhist heritage of Cambodia-India relations, and of a historical friendship in all talks related to Cambodia and China, reflects the diplomatic value of memory and, as a result, is a classic example of the use of a collective self as a strategic asset in diplomacy. Therefore, since Cambodia's diplomacy is value-based, in that it is a matter of symbolic recognition, and that recognition operates at the level of culture, reciprocity, diplomatic symbols reinforce the trust and legitimacy of the two states.

In this sense, diplomacy is more than a process of direct bargaining among state actors; it is, in fact, an elaborate historical and social process of meaning creation that is historically and socially limited. Most prominently, as a bridge civilisation, it is an active instrument of the constructivist theory of international relations. Such a design reflects the synthesis of Cambodia's culture, encompassing all the civilizational elements of India and China. In the current geopolitical context, it continues to serve as a mediator and balancer between the two countries. The synthesis of four theoretical perspectives offers a more complex understanding of the role of civilisation in Cambodia. Diffusion theory accounts for the flow of cultural ideas; soft power theory demonstrates the moral and diplomatic influence of these ideas; hybridisation theory explains the localisation and reconfiguration of foreign traditions by Cambodia; and the constructivist theory of international relations focuses on how the historical continuities of the past shape Cambodia's current international identity and diplomacy.

All of these theories take Cambodia as a flexible context for cultural synthesis, including civilizational interchange and diplomatic mechanisms. Civilizational diplomacy is woven from the diffusion, adaptation, and institutionalisation of cultural values. This diplomacy stretches from ancient maritime pilgrimages to contemporary regional cooperation, expressed in the ASEAN, the Belt and Road Initiative, and the Mekong–Ganga Cooperation. In a nutshell, these theories explain how culture becomes strategy, heritage becomes policy, and, in essence, civilisation becomes diplomacy. This continuity casts Cambodia as one of the most culturally understanding and politically balanced mediators in Asia, as illustrated in Figure 1.



Source: Author

3. Methodology

3.1 Research design

This study used a qualitative, historical-comparative framework to analyse Cambodia's role as a civilizational bridge between the Indian and the Chinese cultural spheres. The framework integrated archival historiography, ethnographic field research, and interpretive cultural studies. The research operated within an inductive interpretive framework, isolating patterns of civilizational transmission and hybridisation within documentary and oral data. While archival resources presented the macro-historical narrative, ethnographic forums focused on the micro-historical narratives of heritage, identity, and diplomacy. The twin approach provided both historical depth and contextual accuracy to the study, allowing the researcher to map the impact of ancient cultural flows on contemporary diplomatic practices.

3.2 Data collection

For this project, primary data were collected over twelve months, from June 2023 to May 2024, through 20 semi-structured interviews in the three major cultural and political centres of the Kingdom of Cambodia: Phnom Penh, Siem Reap, and Battambang. Data collection participants were purposively selected to include all relevant dimensions of Cambodia's cultural diplomacy and its civilizational heritage. Interviewees included five Cambodian senior monks who are specialists in the Buddhist-Chinese tradition, six university teachers and historians of Khmer studies, four cultural officers from the Ministry of Culture and Fine Arts, three heritage specialists, and two Sinologists from the Confucius Institute in Cambodia. Each interview lasted 45 to 90 minutes and was guided by a loose structure that allowed for the greatest degree of divergence and reflection on issues of historical memory and cultural response, as well as on positive and negative perceptions of Indian and Chinese influence. The interviews, which were conducted in Khmer and English, were recorded and later transcribed. The interviews were then coded and processed thematically to trace continuity, dialogic negotiation, and cultural reinterpretation of the issues in Cambodia's cultural and diplomatic history.

As part of my ethnographic research, I used secondary data from various archival, epigraphical, and literary sources. To gain better historical and analytical understanding, this focused on sources such as Chinese history books from the Song and Ming Dynasties, which discuss tributary trade relations and cultural diplomacy of the Chinese dynasties with the Khmer kingdoms; the Angkorian period, which has Sanskrit and Khmer inscriptions; and other source materials that include bas-reliefs, temple murals, and iconography depicting the divine king and moral order. This also meant utilising the existing literature on cultural diffusion and regional diplomacy (Cohen, 2023; Heng & Schottenhammer, 2024; Stark & Manguin, 2023) as well as the policy documents from UNESCO (2021), ASEAN, and the Confucius Institute (2010-2024). All these sources, both textual and material, enabled the study to cross-check different interpretations of historical records, cultural documents, and current policy documents, thereby increasing its analytical depth and validity.

3.3 Data analysis

The data analysis utilised thematic coding, comparative synthesis, and cross-cultural analysis, harmonising with the interpretivist approach of the research design. All interview transcripts and documentary data were organised and analysed with NVivo 14, which facilitates coding and pattern retrieval. The analytical approach unfolded across three interrelated phases. In the first phase, open coding, several ideas and phrases were identified in the data corpus, namely

diffusion, hybridisation, continuity, and moral governance. This was followed by axial coding, where these ideas were organised into dominant thematic groups that exemplified recurring civilizational dynamics. Civilizations, such as diplomacy, localized Confucianism, and spiritual governance. The last phase, selective coding, blended these themes into interpretative categories that connected historical civilizational exchanges with contemporary articulations of cultural soft power and diplomatic practice.

To present the structural analytical insights, a comparative analytical matrix (Table 1) was created. The comparative analytical matrix illustrates the thematic correlation between the ancient patterns of cultural transmission and their contemporary diplomatic reflections. Specifically, it demonstrates how Cambodia's cultural interactions with India and China developed from ceremonial and artistic exchanges to modern cultural diplomacy and transnational collaborative frameworks.

Table 1. Analytical matrix of cultural diplomacy patterns

Analytical focus	Description	Illustrative example
Cultural transmission	Tracing the routes and agents that enabled the spread of civilizational ideas through trade, pilgrimage, and diplomacy.	Maritime routes of the <i>Funan</i> kingdom, transmitting Buddhist texts and Chinese silk; royal embassies to Tang China.
Localization	The process of acculturation of foreign cultural and political systems, such as philosophies, fits within Khmer cosmology and political structures.	The Devarāja cult incorporates Confucian ideas of virtue and rank into the Hindu-Buddhist royal theocracy.
Hybridization	The incorporation of Indian and Chinese elements into Khmer religious art and governance.	Temple architecture combining Indian mandala layouts with Chinese geomantic alignment principles.
Continuity	The persistence of ancient civilizational links into contemporary forms of diplomacy and soft power.	Confucius Institutes, Mekong–Ganga Cooperation, and China-funded restoration of Angkor temples.

This interpretive matrix showed how the exchange of Ancient Civilisations was recontextualised within Cambodia's cultural diplomacy and identity formation across different historical periods. All ethical requirements for cultural and qualitative research were met across all research activities. Participants were informed, and consent was obtained before the interviews. Participants were able to exercise their right to anonymity. While pagodas and temples were approached with the local gatekeepers, the indigenous interpretive authority was respected. As a result, the use of visual and archival materials was carried out in accordance with the institution's guidelines to honour both living and historical cultural heritage. No political data that is considered confidential was collected or disclosed.

4. Findings and discussion

Both historical and archaeological records verify that Cambodia was a cultural and trading crossroads between the Indian Ocean and the South China Sea. Cambodia has been, from the time of the Funan Kingdom (1st-6th century CE), a crucial point of both direct and indirect (aided by the movement of monks, diplomats and scholars) transmission, through the Maritime Silk Routes, of rituals, and religious and artistic traditions, from India and China, and also of the unembellished flowing of culture (Heng & Schottenhammer, 2024).

Ray (2020) asserts that there is trade, and then there is what he terms civilizational dialogue, in which the elements of commerce, religion, and politics are integrated and work together. Cambodia's location was already a vital point of such civilizational dialogue when the early Indian Buddhist missions and the Chinese pilgrim missions, such as those of Faxian and Yijing, religiously and diplomatically moved across the region (Sen, 2006).

The Khmer polity's political culture was shaped by a hybrid of internalised Indian and Chinese ideologies. According to Chan (1996), the fusion of Hindu cosmology and Confucianism grounded the Khmer belief system of the Devarāja monarchy. While the Hindu system of thought viewed the King as the supreme, earthly representation of the divine, with all of the reverence attached to that role, Confucianism emphasised the virtuous ruler, moral authority, and the political supremacy of a pyramidal hierarchy. Bunthorn (2022) describes the result of such a fusion as a moral monarchy, in which the Angkorian ruler exercised authority through divine right and administrative control over the state. The Angkorian inscriptions that reflect both Brahmanical traditions and Buddhist traditions capture this duality. Furthermore, the Confucian ideal of a just ruler complemented the Khmer administrative system, especially in the law and the temple economy. Therefore, Cambodia's ancient kingship was more than simply a divine and religious rule; it was a spiritually and politically rationalised power that integrated Indic and Sinic traditions.

Looking at the visual and textual aspects of Cambodia's civilisation, one can see a unique fusion of Indian and Chinese influences in Khmer. As Lavy (2023) noted, the fusion of Chinese ceramic artistry, Indian iconography, and Khmer architectural structure, as a first of its kind, can be identified as visual diplomacy, an artistic representation of the merging of cultures. This can be seen in the temple complexes at Angkor, more specifically at Angkor Wat and Bayon. While the temples reflect the captured Hindu-Buddhist cosmological principles of India, their cross-axial and celestial alignment demonstrate a focus on China's geomantic alignment. Additionally, Chinese influences in calligraphy can be found in Khmer inscriptions, while the Indian tradition of epigraphy persisted in Sanskrit royal titles. All these blended elements, in the architecture and artworks, communicated to the outside world the different roles Cambodia played as a civilisation mediator. It offered a sense of legitimacy, unity, and a moral order to the diplomacy of the region and beyond.

In the 21st century, the role of Cambodia's ancient civilisation is once again being incorporated into contemporary means of cultural diplomacy. Po and Sims (2022) state that the Belt and Road Initiative (BRI), launched by China, and India's Mekong-Ganga Cooperation (MGC) have pragmatically utilised the revived historical trade and cultural routes to pursue inter-regional soft power dominance. Bunthorn (2022) argues that civilizational diplomacy, as a means of cross-border soft power, has already been practised at the early stages of inter-Asian connectedness through the restoration of temples, cultural diplomacy through festivals, and the mobility of scholars. Additionally, the Confucius Institute in Phnom Penh and the Indian cultural centres established by the ICCR in Southeast Asia exemplify Nye's (2004) soft power

theory, whereby influence is exercised through the assimilation and voluntary cross-border movement of people, without the use of force. Consequently, Cambodia's temples, cultural traditions, and historical narratives are used as a diplomatic asset to achieve a heritage-based diplomacy that fosters inter-regional collaborative relations.

According to Cohen (2023), Cambodia's current position can be described as strategic syncretism, as the country diplomatically balances the competing cultural and geopolitical influences of India and China through sophisticated, strategically positioned diplomacy, with both powers having historical ties to the region. Instead of choosing one of the competing powers, Cambodia's two civilizational heritages seem to aid her in sustaining foreign relations, strategically placed, what Nye (2004) calls soft balancing by attraction. Cambodia's participation in both the Chinese-led BRI and the Indian-led MGC initiatives is a manifestation of this balance, illustrating once again how the historical legacy of hybridisation informs contemporary statecraft. The enduring legacy of civilizational diplomacy is a clear indication of Cambodia's ability to mediate between the past and contemporary empires by transforming and utilising its heritage into a means of political bargaining and cultural diplomacy, as demonstrated in Table 2.

Table 2. Continuum of civilizational diplomacy in Cambodia

Dimension	Historical period	Nature of interaction	Modern parallels
Cultural transmission	Funan–Chenla maritime exchange (1st–7th CE)	Trade and monastic exchange between India and China via Cambodia	ASEAN–China–India cultural forums
Religious hybridization	Angkor period (9th–13th CE)	Synthesis of Hindu–Buddhist–Confucian thought in state ideology	Buddhist diplomacy and interfaith initiatives
Artistic symbolism	Angkorian architecture	Fusion of Indian cosmology and Chinese geomancy in temple design	Cultural heritage diplomacy and UNESCO cooperation
Modern cultural diplomacy	21st Century (2010–2024)	Revival of heritage through BRI and MGC projects	Cultural institutes and joint restoration programs
Civilizational mediation	Ongoing	Balancing the influence of India and China	ASEAN centrality in regional diplomacy

Cambodia's evolving civilization as a continuum illustrates how successive interactions of centuries of religion, art, and ethics influenced ancient statecraft and modern-day diplomacy. From the diplomatic practices of today's Cambodia to the temples of Angkor, Cambodia's entire cultural continuum forged a testament to Asia's interconnectedness, whilst also showing that diplomacy resides in the core of a civilization.

5. Conclusion and recommendation

This study shows that Cambodia's evolving civilizational identity was not a product of cultural subordination, but of a unique synthesis through creative mediation of Indian and Chinese influences. This synthesis formed the basis of Khmer political, religious, and artistic expression. The historical trajectory of Cambodia, from the Funan and Chenla to the Angkorian Empire, demonstrates how Indic metaphysics and Sinic ethics were integrated into a Khmer worldview of harmony, legitimacy, and cosmological order. Through the assimilation of Hindu–Buddhist spirituality and Confucian–Daoist elements, Cambodia developed a civilizational grammar that was both hybrid and transgressive.

As a civilisation that actively integrates and transforms external influences into its own less rigid frameworks of understanding, Cambodia is a middle, or intermediary, civilisation. Diplomacy and worship were integrated into the same buildings, and transcultural understanding was inscribed into language, art, and ritual. In today's world, these legacies are shaping Cambodia's engagement in heritage-based diplomacy through the Belt and Road Initiative (BRI), the Mekong-Ganga Cooperation (MGC), and ASEAN's cultural initiatives. These partnerships show that civilisation, in the form of trust, balance, and continuity, is an act of diplomacy. This is indicative of Cambodia's ability to show the world that the integration of cultural heritage into diplomacy is an effective method of utilising a shared civilizational memory and is critical in establishing a framework for modern regional collaboration and peaceful relations:

- Cultural diplomacy: In the 21st century, Cambodia can act as a cultural crossroads by facilitating trilateral heritage initiatives with India, China, and the ASEAN region, including the construction of cultural corridors that connect Angkor, Nalanda, and the Silk Road.
- Policy: Cultural diplomacy should be adopted by governments as a primary tool in the framework of ASEAN's contemporary multilateral diplomacy, through collaborative heritage preservation and museum restoration projects, and through the establishment of regional dialogue centres.
- Education: For scholarly diplomacy and youth engagement, develop comparative civilizational studies centres in Phnom Penh, New Delhi, and Beijing for the interdisciplinary study of trans-Asian exchange, historical linguistics, and intercultural philosophy.
- Technology: Preserve and provide universal access to civilizational heritage through the application of Artificial Intelligence to the digital preservation of Khmer and Sanskrit inscriptions, 3D mapping of temple iconography, and creation of open-access archives.

The above implications, taken together, show that cultural diplomacy is the opposite of an abstract and idealistic notion; it pragmatically illustrates that cultural diplomacy can, and does, convert shared legacy into enduring international collaboration based on cultural respect. The focus of future studies on comparative civilizational studies should be:

- Comparative regional studies: To better contextualise and explain the role of Cambodia as an intercultural facilitator in Southeast Asia, examine the civilizational synthesis in cultural crossroad areas of Myanmar, Laos, and Vietnam.
- Digital humanities: Apply artificial intelligence and the digital humanities to the inscriptional and visual iconography of languages to study and visualise the historical patterns of diffusion and localisation.

- Contemporary civilizational diplomacy: Investigate the role of Buddhist and Confucian soft power in the contemporary diplomatic triangle of the ASEAN-India- China relations, particularly in education, travel, and cultural exchange.

This research contributes to the understanding of culturally diverse diplomacy and coexistence from Cambodia's civilisation. The research also provides insights into gaps in Cambodia's civilisation, which can be addressed through contemporary soft power to provide a more holistic approach to the use of heritage, ethics, and diplomacy in the maintenance of regional peace and the fostering of global cooperation.

Acknowledgments

The author would like to express his deepest gratitude to the blind reviewers and the editorial team of CJESS for making this article available to the scholarly community. Without their contributions, this article would not have appeared in academic circles. Therefore, their contributions are considered irreplaceable and beneficial to society as a whole, especially to the scholarly research and publication community.

Conflict of interest

No potential conflict of interest was reported by the author.

Funding

The author received no financial support for the study, authorship, and/or publication of this article.

Declaration of AI usage

The author used ChatGPT to generate Figure 1 by using his own ideas and Grammarly to polish the language in some parts of the article. However, he declared that the article's content is entirely his.

References

- Bunthorn, K. (2022). Mapping Indo-Khmer historical and cultural connections: Peaceful coexistence and convergence of culture. *Journal of South Asian Studies*, 10(2), 169–181. <https://doi.org/10.33687/jsas.010.02.3913>
- Bunthorn, K. (2023). Soft power in India's Act East policy: A Cambodian perspective. *India Quarterly*, 79(2), 189–208. <https://doi.org/10.1177/09749284231165110>
- Chan, A. (1996). Confucianism and development in East Asia. *Journal of Contemporary Asia*, 26(1), 28–45. <https://doi.org/10.1080/00472339680000031>
- Chheang, V. (2021). Cambodia's embrace of China's Belt and Road Initiative: Managing asymmetries, maximizing authority. *Asian Perspective*, 45(2), 375–396. <https://doi.org/10.1353/apr.2021.0005>
- Cohen, W. I. (2023). *East Asia at the center: Four thousand years of engagement with the world*. Columbia University Press. <https://doi.org/10.7312/cohe20832>
- Deth, S. U. (2020). *A history of Cambodia–Thailand diplomatic relations, 1950–2020: Insights from Southeast Asia* (Vol. 3). Galda Verlag.
- Gill, B., & Huang, Y. (2023). Sources and limits of Chinese soft power. In *Survival* (pp. 17–35). Routledge. <https://doi.org/10.4324/9781003421801>

Note: This reference appears incomplete because the editor and book title are unclear. Verify the source.

- Hall, K. R., & Whitmore, J. K. (2020). *Explorations in early Southeast Asian history: The origins of Southeast Asian statecraft*. University of Michigan Press.
- Hannerz, U. (1992). *Cultural complexity: Studies in the social organization of meaning*. Columbia University Press.
- Henderson, J. C. (2016). Remembering Lee Kuan Yew: Politics, heritage, and political heritage in Singapore. *International Journal of Heritage Studies*, 22(1), 59–69. <https://doi.org/10.1080/13527258.2015.1095785>
- Hendrickson, M., Stark, M. T., & Evans, D. (Eds.). (2023). *The Angkorian world*. Routledge.
- Heng, D., & Schottenhammer, A. (2024). The pre-colonial heritage of the South China Sea. In H. M. Hensel (Ed.), *Security dynamics in the South China Sea* (pp. 21–37). Routledge. <https://doi.org/10.4324/9781032657493>
- Katzenstein, P. J. (Ed.). (1996). *The culture of national security: Norms and identity in world politics*. Columbia University Press.
- Lavy, P. A. (2023). Many lives of ancient Khmer sculpture: From the pre-Angkorian period to contemporary Cambodia. In *Teaching South and Southeast Asian art: Multiethnicity, cross-racial interaction, and nationalism* (pp. 21–44). Springer. https://doi.org/10.1007/978-3-031-22516-1_2
- Nye, J. S., Jr. (2004). *Soft power: The means to success in world politics*. PublicAffairs.
- Pieterse, J. N. (2019). *Globalization and culture: Global mélange* (4th ed.). Rowman & Littlefield.
- Verify edition; later editions exist.*
- Po, S., & Sims, K. (2022). The myth of non-interference: Chinese foreign policy in Cambodia. *Asian Studies Review*, 46(1), 36–54. <https://doi.org/10.1080/10357823.2021.1887813>
- Ray, H. P. (2020). *Coastal shrines and transnational maritime networks across India and Southeast Asia*. Routledge India.
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). Free Press.
- Sen, T. (2006). The travel records of Chinese pilgrims Faxian, Xuanzang, and Yijing. *Education About Asia*, 11(3), 24–33. https://imteachng.com/index_html_files/travel_records.pdf
- Stark, M. T., & Manguin, P.-Y. (2023). The Mekong Delta before the Angkorian world. In M. Hendrickson, M. T. Stark, & D. Evans (Eds.), *The Angkorian world* (pp. 64–79). Routledge. <https://doi.org/10.4324/9781351128940>
- UNESCO. (2021). *Recommendation on the ethics of artificial intelligence*. UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000381137>
- Wendt, A. (1999). *Social theory of international politics*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511612183>

Teaching English for specific purposes in the age of automation within the Cambodian context

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Article info

Article history

Received: March 2, 2026

Revised: April 19, 2026

Accepted: June 3, 2026

Keywords

Automation

Curriculum innovation

Digital competence

English for specific purpose (ESP)

English language education

Article type

Narrative review

Abstract

This paper scrutinizes the roles of English for Specific Purposes (ESP) in Cambodian higher education, which has become crucial in preparing learners for the global labor market in the age of automation, artificial intelligence, and Industry 4.0. Drawing on international and local literature, the author combines theories, histories, and current ESP practices in Southeast Asia to understand the unique complexities of Cambodia, including the misalignment of the ESP curriculum, the lack of pedagogical infrastructure, and the slow pace of curriculum and pedagogical change. The author also explores alternative solutions and practices, such as innovative, adaptable strategies like artificial intelligence and task-based instruction, to improve learners' educational and employability outcomes. This study highlights significant gaps in national education policy and industry practice, and the need to establish a culturally grounded, technology-rich ESP pedagogy. The author provides a national perspective in which ESP serves as a holistic, integrative framework for the seamless alignment of higher education and the workforce. This paper also extends a call for the regional and national ESP community to engage in a variety of research activities, such as longitudinal studies and cross-regional comparisons, to evaluate the impact and effectiveness of ESP. The insights from this study are invaluable for educators, curriculum planners, and policymakers as they seek to reconfigure English language teaching and learning to meet Cambodia's development needs in the digital age.

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1. Introduction

Scholars across disciplines observe the rapid pace of technological change, often referred to as the Fourth Industrial Revolution or Industry 4.0. (Schwab, 2016). Automation, artificial intelligence (AI), robotics, and machine learning, in addition to transforming industrial production, are also profoundly reshaping the global labour market. According to McKinsey Global Institute (2020), by 2030, up to 375 million people worldwide will need to change the occupational categories in which they work due to automation. In this situation, language skills, particularly for specific purposes, will be vital for entry into new digital, cross-disciplinary work environments. Numerous authors note that, due to the dominance of English in international communication, science and technology, and business, English will increasingly

be integrated into the applied, communicative, and intercultural competencies required in today's professions (Hyland & Jiang, 2021; Iswati & Triastuti, 2021). In these circumstances, English for Specific Purposes (ESP) operates within crucial boundaries to equip learners with language skills targeted to specific disciplines, such as information technology (IT), medicine, engineering, tourism, and finance (Salmani-Nodoushan, 2020; Syakur et al., 2020). Tann and Scott (2021) document a growing need for English language teaching that is both structurally correct and relevant to the situation and purpose for which it is intended in the world of work.

The rapid integration of Cambodia into global economic and digital frameworks has escalated the country's need for English for Specific Purposes (ESP). According to the Asian Development Bank [ADB] (2023), Cambodia's economy has begun to digitise, with increased reliance on automation across the textile, agricultural, and tourism industries. However, the workforce lacks both technical and communication skills. Ngo (2023) noted that Cambodian HEIs are beginning to face the language skills gap, meaning that graduates are increasingly lacking the English proficiency skills that are demanded by employers in these new industries.

Cambodian universities face remarkable structural and pedagogical challenges, even as ESP becomes increasingly important in the age of automation. According to Ekayati et al. (2020) and Iswati and Triastuti (2021), a plethora of regional ESP programs are outdated, over-reliant on grammar-translation approaches, and fail to incorporate real-world communicative activities and industry-related content. For Huot and Hok (2025b), in the Cambodian context, curriculum design emphasises general English and academic reading and insufficiently addresses the other crucial components of automated and digital workplaces, such as technical writing, presentation, and professional interaction. Additionally, researchers such as Arini et al. (2022) and Bui (2022) mention the prevalence of undercut ESP classrooms devoid of technology, let alone automation. Regarding digital pedagogical applications, a disparity between policy and classroom practice persists in Cambodia. Educators are often not equipped to use AI tools such as speech-to-text and other interactive simulations that are considered vital for promoting learner autonomy and authentic workplace practice (Kakoulli-Constantinou & Papadima-Sophocleous, 2020; Vinothkumar & Karunamurthy, 2023).

The gap between supply and demand for English language teaching has led to issues with the employability of teaching graduates. Mostafavi et al. (2021) suggest that ESP programs must change and adapt to the linguistic and digital dimensions of the 4th Industrial Revolution, or else students will remain unprepared for the globalised, digital, and highly integrated labour market. This review will focus on how ESP has changed within the context of global automation, as well as the responses of higher education institutions in Cambodia to these changes. The paper draws on international best practices and recent empirical evidence to examine the necessary changes to ESP teaching to remain relevant in the context of intelligent automation.

The review addresses (1) the impact of automation on the skills that the workforce requires, particularly in terms of communicative and linguistic skills; (2) the emerging ESP landscape in Cambodia, including its advantages and disadvantages; and (3) the necessary pedagogical, technological, and policy changes needed to realign ESP to the global changes. In doing so, the review aims to analyse the challenges and opportunities in the ESP education landscape in Cambodia, and to develop context-specific recommendations for curriculum revision, teacher training, and education policy.

2. Understanding ESP: Concepts, history, and trends

The overarching definition of English for Specific Purposes (ESP) views it as an approach to teaching concerned with learners' present and future communication requirements in specific areas of knowledge or professional fields. Hutchinson and Waters (1987) argue in their pioneering writings that ESP should not be considered a product but rather a methodology, and that it should be customised to learners' specific contextual needs. Moreover, Hyland and Jiang (2021) explain that the distinguishing feature of ESP is the commitment to relevance, whereby the instructional materials, professional discourse communities, and activities are integrated.

ESP, General English, and English for Academic Purposes are frequently compared. General English helps learners develop communication skills for daily use, while the ESP develops skills in the use of language, the choice of words, and the use of interpersonal skills in the accurate and appropriate use of language in each profession or field (Anthony, 2018). ESP differs from EAP not only in the disciplines it covers but also in the genres it uses. While EAP covers essays, reports, and research papers, ESP may include activities such as writing lab reports, business emails, or making presentations (Iswati & Triastuti, 2021). ESP also includes English for Medical Purposes, English for Law, English for Tourism and Hospitality, and English for ICT, each with specific discourse communities and communication skills. The main aim of ESP is not only to teach English but also to teach learners the ability to use the English language in social and professional settings (Arnó-Macià et al., 2020). This is what makes it stand out as part of the education for the world of work. With the onset of automation and globalisation, the ability to speak and write in the technical and professional language of a specific field is becoming increasingly important. This is especially the case in a workplace that is diverse in terms of language and culture (Salmani-Nodoushan, 2020; Syakur et al., 2020).

The roots of English for Specific Purposes (ESP) date back to the post-World War II period. According to Hutchinson and Waters (1987), the 60s were instrumental in advancing ESP as English became a global language for business, diplomacy, and higher education. Educators began embracing the one-size-fits-all syllabus for language instruction and developed ESP as a nimble, focused system that catered to the specific needs of a profession or occupational group. Dressen-Hammouda (2025) emphasises that the first Economic ESP programs, developed as Western economies grew, targeted professionals in engineering, oil, and business management. ESP as a field of study developed and incorporated applied linguistics, discourse analysis, and corpus linguistics. According to Hyland (2014), ESP is now considered a field of language teaching that transcends the boundaries of the language being taught and the discipline of ESP, merging the concepts of language, discipline, and identity.

ESP has been used internationally in various fields, including academia. For instance, Gollin-Kies et al. (2015) describe how it has been used in the health sciences (e.g., patient interviews, medical case studies), law (e.g., courtroom discourse, legal drafting), ICT (e.g., document and software manuals), and hospitality and tourism (e.g., service encounters, intercultural negotiation). The changes in ESP have mirrored changes in the economy and technology; the emergence of new industries is accompanied by the emergence of new registers and new demands for teaching (Tann & Scott, 2021). ESP seems to have gained popularity in Southeast Asia as countries liberalise their economies and integrate into the global knowledge economy, thereby enhancing their human capital. For example, in Thailand, ESP has been adopted in vocational and tertiary education to enable students to undertake mobility towards the ASEAN and to secure employment in the services sector (Bolton & Jenks, 2022). In the business and science programs in Vietnam, curriculum realignment and needs assessment have been used to

implement ESP (Ngo, 2023). Similarly, in Indonesia, where there are also labour market problems, ESP has been incorporated into the curricula of polytechnic and teacher training institutions, in line with local need assessments and the national educational framework (Iswati & Triastuti, 2021).

Compared with other countries in the region, Cambodia's situation is both more complex and more varied. While English is becoming an important language of education, commerce, and cross-border and regional diplomacy, the integration of English for Specific Purposes (ESP) teaching in Cambodian universities is still in its infancy. Huot and Hok (2025b) show that Cambodian public and private universities still teach English using the same generic, non-context-specific syllabi. Students in finance, tourism, engineering, and other professions are taught the same generic courses regardless of the actual communication needs of their workplaces. The stagnation of ESP in Cambodia was the result of a lack of localised teaching materials, teacher training, and institutional support (Carrión-Martínez et al., 2020). While some private universities in Phnom Penh have begun implementing ESP for tourism and business, most regional (i.e., provincial) universities lack the facilities, expertise, or institutional support to do so. The situation has been made worse by the urban-rural digital divide (Syakur et al., 2020). On a more positive note, some progress is being made. As efforts to address the ESP needs of labour mobility within ASEAN begin, some Cambodian universities have started partnering with universities in other countries in the region. Although these initiatives are still in the early stages, they demonstrate a developing understanding of the importance of ESP in closing educational and employment gaps, particularly in automated workforce contexts, as shown in Figure 1.

Figure 1. Conceptual overview of English for specific purpose: Scope, origins, and regional trends



Source: Authors

3. Automation and the changing skills landscape

The rapid increase in automation, especially due to Artificial Intelligence (AI), is changing how people use language in both work-related and social interactions. For example, in addition to the traditional mechanical and manual functions, Benanav (2020) and Willcocks (2020) demonstrate that AI can now be employed in areas that involve high levels of interpersonal and communication activities, such as in customer service, healthcare, and digital marketing. The increased use of AI in these and similar professions poses challenges for the teaching of English in these fields, especially within English for Specific Purposes (ESP) frameworks. The development of communication technologies, especially AI-powered communication technologies, such as chatbots, automated email responders, and voice assistants, remains the most popular and significant innovation. According to Song et al. (2023), while technologies can simulate human-like conversations, for the learners of ESP, the technologies present both potential and problems. The innovations could remove the need for learners to participate in real-world language interactions and replace such interactions with artificial conversations; however, real communicators in the world, such as the audience of the learners, can understand and appreciate variables of culture, tone, context, and emotion in ways that these innovations cannot (Adamopoulou & Moussiades, 2020).

Taking machine translation as an example, there has been considerable advancement in the use of deep learning techniques and large volumes of data in systems such as Google Translate and DeepL Translate. However, the research community assumes less confidence in the use of these systems in specific fields (Wu & Dredze, 2020). In their work, they note that machine translation in law, medicine, and technical engineering lacks sufficient contextual and substantive accuracy in the use of proper terminology specific to the domain. In reply, Chamorro-Premuzic (2023) posits that users of such systems need to be trained to go beyond using them to include assessing and modifying the system-generated output, critiquing those outputs, and making edits as necessary, all of which require a complex integration of linguistic and digital skills. Automation has transformed the focus of English instruction, rather than eliminating the need for English teaching. The role of ESP instructors has been expanded to equip students to operate within hybrid communicative frameworks. He means that, in addition to having a working knowledge of English, students need to be able to use AI systems to collaborate with or work alongside them. The need to rework ESP frameworks to incorporate a greater emphasis on critical awareness of language, flexible pragmatics, and technology integration is pressing (Kim & Kim, 2024; Vinothkumar & Karunamurthy, 2023). As stated in Kolasani (2024), Industry 4.0 encompasses the cyber-physical systems, the Internet of Things (IoT), and cloud computing, which thrive in contemporary digital workplaces and require more than just functional language skills. Aksoy et al. (2022) and Schwab (2016) discuss the increasing integration of human labour and intelligent systems, with communicative activities partitioned among human-machine interfaces. In this case, English is not merely an interaction language but serves as a means of integration between technological systems and the human mind.

According to Kolasani (2024), workers of today's digital environments must possess more than just digital literacy; they must also be able to compose and analyse data-based reports, adhere to cybersecurity protocols, and navigate collaborative environments like Slack, Trello, or Zoom. As a result, ESP is digital communication ethics, asynchronous discourse management, and platform-specific registers, which must extend beyond the confines of grammar and vocabulary teaching. Such claims have also been made by Huot and Hok (2025a) regarding the Cambodian situation. There is little to no use of digital tools, whether real or simulated, in ESP

teaching, and this is a growing concern for low-resource provincial universities, where limited infrastructure hinders the implementation of blended or online ESP teaching models. Furthermore, as digital workplaces advance, organisations are increasingly susceptible to security breaches and the spread of false information. Because of this, cybersecurity training is necessary to complete a new type of professional training. Researchers like Fernando (2024) and Nickerson (2025) advocate for modifications to ESP (English for Specific Purposes) to include the teaching of the language of data protection, email security, and incident-reporting procedures, especially in the fields of banking, e-commerce, and public administration.

Consequently, the potential of ESP is to meet the new demands of Industry 4.0 language and to integrate 21st-century skills, including traditional skills, digital platform skills, and safe and ethical practices in digital environments. New fields are continually created by digital advancement and sustainable development agendas, and, as such, the breadth of ESP must also be expanded to include industry-specific language and discourse practices. In this regard, Dlamini et al. (2024) and Johnson et al. (2022) noted that emerging fields such as digital finance, data analytics, UX/UI design, and green technology are providing new employment opportunities and new forms of professional communication. In digital finance, ESP learners deal with algorithmic trading, cryptocurrencies, and real-time risk analysis. In the case of data analytics, they need to describe, visualise, and interpret data through dashboards, which is a synonym for multiple literacies (Chamorro-Premuzic, 2023; Monteiro & Leite, 2021). In contrast, UX/UI design requires the mastery of design critiques, user testing, and report documentation, which are cross-disciplinary and user-centred. Hassan (2023) and Tangredi and Galdorisi (2021) emphasise that the ESP for these new domains should be framed within a task-based learning paradigm, in which learners engage in simulations, role-play, and team-based activities that mirror the critical functions of actual jobs. Such an approach fosters retention and develops the use of flexible language in learning to cope with the demands of both stable and volatile innovation and adaptive systems.

In Cambodia, these trends are still incipient. Nevertheless, some universities have started to experiment with the introduction of ESP courses in environmental science, agribusiness, and digital marketing, which are directly aligned with the ADB (2023) reports on the integration of national and international development and pedagogical scholarships. Such efforts signal the start of a shift in pedagogy toward more contextually responsive ESP teaching for which there is still considerable need for scaling and a more professional approach.

Table 1. Automation and the changing skills landscape

Subsection	Key focus areas	Implications for ESP
The Impact of Automation on Language Use	Rise of AI tools, limits of machine translation, and hybrid linguistic-technical skill demand	ESP must train students in AI tool interaction and editing machine-generated output
Industry 4.0 and Digital Work Environments	Need for digital communicative competence, ESP integration with cybersecurity, and digital literacy.	ESP should prepare learners for digital discourse, cybersecurity language, and platform-specific skills

Subsection	Key focus areas	Implications for ESP
The Language of Emerging Fields	ESP applications in digital finance, data analytics, UX/UI, and sustainability sectors	ESP must evolve with industry trends, incorporating task-based learning and domain-specific vocabulary

4. Current state of ESP in Cambodian higher education

Cambodian higher education institutions have acknowledged the role English plays in determining global employment and academic competitiveness. Scholars such as Hok et al. (2026) and Ngo (2023) note that several public and privately owned universities have begun offering English for Specific Purposes (ESP) courses, albeit limited in scope and quality. The provision of such courses has been reported at the Royal University of Phnom Penh, Norton University, and the Paññāsāstra University of Cambodia, which offer ESP in disciplines other than English, such as business, finance, tourism, real estate, IT, and engineering.

However, the scope still appears to be limited. In certain urban institutions, specialised ESP modules, such as those in hospitality or computer science, are offered. In contrast, many universities offer the same English course to all non-English majors, irrespective of their field of study (Iswati & Triastuti, 2021). As noted by Syakur et al. (2020), this creates a gap between the content of English courses and the needs of the workplace. Legacy structures that are not suited to the 21st-century employment context still dominate the curricula of many Cambodian universities. Tann and Scott (2021) contend that the majority of ESP teaching still employs the Grammar Translation Method and focuses on reading comprehension and vocabulary memorisation, while communicative competence and task-based applications are ignored. This is consistent with Ekayati et al. (2020), as many ESP syllabuses in Southeast Asia fail to address the descriptions of the actual jobs and the labour market.

Employers in Cambodia, for instance, report that graduates fail to accomplish basic communicative tasks like report writing, meeting management, and client correspondence in English. This means graduates are unprepared for rapidly changing communicative tasks driven by automation and internationalisation. The ongoing professional development and preparation of ESP teachers also acts as an obstacle to inadequate ESP teaching in Cambodia. Carrión-Martínez et al. (2020) stress the importance of having both language and field-related knowledge for teaching ESP. However, most Cambodian teachers are trained in general English and applied linguistics and are unexposed to educational technologies and the relevant content areas.

According to Bui (2022), Project-Based Learning (PBL) and blended learning models are underused because of a lack of infrastructure, institutional support, and teacher training. Rural universities face a unique challenge: limited access to computers, internet speeds, and digital learning tools, ultimately deepening the access gap between urban and rural students. This gap underscores the need for greater investment in teacher training programs that align with Industry 4.0 and student-centred learning.

5. Innovative approaches in ESP teaching and learning

ESP education worldwide has adopted innovative and student-centred methods to address the gap between conventional teaching and the new vocational status. Anthony (2018) and Hyland

and Jiang (2021) advocate the use of Task-Based Learning (TBL) and Content and Language Integrated Learning (CLIL) as valid frameworks for integrating language teaching with the world of work. These approaches place learners in contexts involving problem-solving, simulations, and interdisciplinary collaboration to reflect workplace communication. Furthermore, gamification, storytelling, and project-based modules are being implemented to sustain learner motivation and aid language retention (Bahari, 2022). New technologies, such as chatbots, automatic speech recognition (ASR), adaptive learning systems, and virtual environments, have made AI-enhanced ESP instruction more accessible. According to the research of Vinothkumar and Karunamurthy (2023), these tools are shown to improve recipients' technological confidence, engagement, and proficiency in processing the target language.

In Cambodia, several universities and language centres, despite limited physical resources, are trying to implement context-sensitive ESP innovations. For instance, Norton University has created an English for IT course that teaches coding language, communication, tech support, and software documentation. The Royal University of Phnom Penh has also implemented the first ESP modules in the fields of tourism and hospitality, where participants learn customer service and intercultural communication through scenario-based learning (Huot & Hok, 2025b). In less-resourced, contextually challenging areas, there is also noticeable local innovation. In the provincial teacher-training centres, teachers have started to adapt open educational resources (OERs), translating them into bilingual formats and developing specific materials for use in agriculture, business, and nursing programs. These initiatives have been primarily donor-funded, but they are beginning to localise global ESP practices. Huot and Hok (2025a) suggest CoTSR-IL (Counterbalance Tempo-Spatial Reinforcement for Instructional Learning) as a model for modern ESP teaching that draws upon international theory and Cambodian realities. The model consists of four elements:

- 1) Cognitive engagement through professional story simulation.
- 2) Sensory integration and social collaboration through visual and group learning activities.
- 3) Real-world contextual gamification of vocabulary and grammar teaching.
- 4) ESP (English for Specific Purposes) digital scaffolded activities with structured autonomy.

This model aims to counterbalance the sequencing rigidity of traditional lessons by flexibly and dynamically reinforcing language use across time, space, and multiple modalities. This aligns with the adaptive learning philosophy, given the range of demographic and technological infrastructure diversity in the Cambodian learner population.

Table 2. ESP in Cambodian higher education and innovative practices

Section	Key insights
Institutional Landscape	ESP offered at select universities (e.g., RUPP, Norton); limited integration in non-English majors
Curriculum Limitations	Curricula misaligned with labour market needs; overreliance on grammar-translation methods

Section	Key insights
Teacher Preparation and Pedagogical Gaps	ESP teachers lack training in educational technologies and experiential teaching approaches
Global Best Practices	Adoption of TBL, CLIL, gamification, and AI tools improves learner engagement and real-world readiness.
Contextual Adaptations for Cambodia	Innovative ESP examples in tourism, IT, and agriculture; use of bilingual OER in rural institutions
Proposed Pedagogical Model	CoTSR-IL model promotes dynamic learning through storytelling, group work, and gamified tasks.

6. Challenges and barriers in Cambodia

One extremely relevant challenge for the modernisation of ESP instruction in Cambodia is the gap in technological infrastructure in both urban and rural areas. Alam and Asimiran (2021) and Bui (2022) mention that limited internet access, outdated computer labs, and a lack of specialised software severely impede the integration of technology into ESP learning. Although universities in Phnom Penh have begun to use digital learning tools and multimedia instruction, many of the provincial universities continue to operate without adequate hardware and software. This digital divide creates inequity and negatively impacts ESP learners by making it impossible for them to access Industry 4.0 tools such as virtual simulations, AI language-learning apps, and personalised adaptive learning systems.

Agboola and Tunay (2023) argue that such inequalities compromise the learning experience and exacerbate the gap between the availability of the required resources and a technology-savvy workforce that meets national aspirations. Concerning ESP, it is rural universities that are worst affected, leaving students to graduate without the experience of a digital-remote workplace (Huot & Hok, 2025b). Another key obstacle is the disjointed national language policy and its implementation in the labour market. The Ministry of Education, Youth and Sport (MoEYS) is trying to implement English across the curriculum, but there is still no focus on English for specific purposes (ESP) within the national educational framework. Iswati and Triastuti (2021), similarly, point out that the policy documents focus on General English or English for Academic Purposes (EAP), without a systematic focus on the profession-specific communicative competencies.

Huot et al. (2025) indicated that national curriculum development is often highly centralised and lacks systematic incorporation of employer and labour market feedback. This creates a disconnect between higher education curricula and the competencies required in the workplace. For example, tourism and information technology are priority sectors of Cambodia's economic development strategy, yet many higher education institutions lack or underprovide ESP in these fields (ADB, 2023). The marginalisation of ESP has multiple institutional origins. ESP is often treated as optional because there are no guidelines, no funding, no training, and therefore no institutional recognition as a necessary component of professional education. Such an oversight demonstrates a policy gap that impedes alignment between a country's human capital development and the requirements of a knowledge- and automation-based economy. Cultural and pedagogical factors also hinder the implementation of ESP in Cambodia. The hierarchical,

unilateral nature of curriculum development, in which major decisions are made by the central bureaucracy or the university administration, leads to a lack of teacher ownership and stifles creativity and innovation in the classroom. As Tann and Scott (2021) indicated, the absence of meaningful ESP teaching stems from educators not being empowered to adapt the content to students' learning goals due to the inflexibility of the syllabus and other central curriculum guidelines. Also, students' passive learning habits from years of rote learning and high-stakes testing are barriers to adopting learner-centred methods, such as task-based learning, project work, or communicative activities based on simulated real-world workplace situations. In many Southeast Asian classrooms, as noted by Bui (2022) and Dhillon and Murray (2021), students view teachers as the only source of knowledge and are hesitant to participate in exploratory or collaborative activities that require self-initiative and critical thinking.

In addition, Cambodian education's emphasis on testing, especially standardised tests, and memorisation leaves no space for ESP approaches that foster language use, intercultural communication, or problem-solving skills. This cultural resistance, on the one hand, discourages and stifles learners' creativity, while, on the other hand, it continues the cycle of producing graduates who are proficient in the language but lack the skills needed for the workplace, as depicted in Table 3.

Table 3. Challenges and barriers to ESP implementation in Cambodia

Challenge area	Key issues	Impact on ESP
Technological Infrastructure and Digital Divide	Poor internet connectivity, outdated computer labs, and limited access to educational software, especially in rural universities	Prevents effective use of digital tools in ESP; widens rural–urban learning gap; limits exposure to AI-enhanced instruction
Language Policy and National Education Goals	ESP not prioritised in MoEYS policy; misalignment between curricula and labour market needs; lack of formalised ESP frameworks	Limits development and funding for ESP courses; restricts innovation in curriculum design; fails to meet workplace communication needs
Cultural and Pedagogical Resistance	Top-down curriculum design restricts teacher agency; students show passive learning habits and a preference for rote learning.	Reduces classroom adaptability and learner engagement; hinders the adoption of task-based and project-based learning models

7. Conclusion and recommendations

While Cambodia is facing pressures from automation, digital transformation, and global economic integration, the reform of English for Specific Purposes (ESP) in higher education becomes a strategic necessity rather than a peripheral concern. This study shows a mismatch between conventional English teaching methods and the demands of the workplace, particularly in communication, technology, and culture. In the ESP field, post-automation contexts must be viewed as education, employability, and national development paradigms.

One of the core conclusions of this study is that successful ESP reform cannot be explained by new curriculum documents, additional technological innovations, or any single initiative.

Rather, it is a comprehensive and systemic reform that combines institutional capabilities, policy frameworks, teachers' discretionary power, and the relevance of the curriculum to the labour market. In this context, it is recommended that Cambodian universities develop holistic ESP frameworks to address the systemic fragmentation of ESP. Integrating ESP into the core content of professional and disciplinary fields (e.g., IT, business, healthcare, engineering, and tourism) enhances the authenticity of learning outcomes and aligns language instruction with workplace demands. ESP must be anchored in the needs of the economy and the skills sought by employers, and, as such, it must be responsive to the views of employers, alumni, and industry.

ESP and national education strategies need stronger alignment urgently from a policy perspective. Integrating ESP into higher education policy will reinforce its position from a supplementary subject to a fundamental component of employability education. Policy endorsement will also channel funds into teacher training, digital infrastructure, and curriculum development. A national ESP framework, including quality standards, accreditation, and adaptable benchmarks, would assist regional and urban universities and help reduce disparities across institutions.

Instructors of ESP and developers of the curriculum are, pedagogically, in a position to implement the policies and institutional vision in the classroom. This study values pedagogy that is digitally informed and aware of automation. Digitally enhanced pedagogy, including blended learning, task-based instruction, and the use of technologies such as simulations, collaborative tools, and AI language-learning apps, prepares students for the workforce. Technology, however, should be considered an adjunct to pedagogical reasoning, not the primary driver. The professional development of teachers, including the curriculum for digital training, should be co-designed, interdisciplinary, and digitally revitalised.

It is equally important to understand teacher agency. ESP reform will always be superficial if educators are seen only as executors of externally designed curricula. Educational institutions and organisations need to limit rigid protocols and develop teacher ESP pedagogy reform, empowering reflective practitioners to be curriculum problem solvers. This is especially important to address the rural–urban divide and inadequate digital resources.

The study points to several areas for future research and development. Longitudinal, empirical studies are needed to follow the ESP learner's journey from higher education to the workforce and to understand how ESP skills relate to job performance and career advancement. More work is needed on the effects of automation and artificial intelligence, and the subfield of Cambodia within the human–machine partnership on language work and the communicative tasks that accompany it. Within ASEAN, cross-regional research can inform Cambodia on various aspects of policy borrowing, curriculum reform, and partnerships within its unique socio-cultural and institutional context.

The ESC reforms in Cambodia must be seen as a long-term commitment to rebuilding its human capital and to its economic and educational self-determination. With a coherent national vision that combines policy with institutional action and teacher empowerment, ESP can be positioned as a fundamental pillar of higher education reform. By integrating linguistic proficiency with technological, ethical, and cultural competencies, Cambodia can equip its graduates with the flexibility and communication skills needed to navigate an automated world.

Thus, positioning ESP at the centre of the reform of higher education in Cambodia must be seen as an educational imperative and an essential pathway towards the country's inclusive and sustainable development.

Acknowledgments

The authors would like to express their deepest gratitude to the blind reviewers and the editorial team of CJESS for making this article available to the scholarly community. Without their contributions, this article would not have appeared in academic circles. Therefore, their contributions are considered irreplaceable and beneficial to society as a whole, especially to the scholarly research and publication community.

Conflict of interest

No potential conflict of interest was reported by the authors.

Funding

The authors received no financial support for the study, authorship, and/or publication of this article.

Declaration of AI usage

The authors used ChatGPT and QuillBot to polish the language in some parts of the article. However, they stated that the article's content is entirely theirs.

References

- Adamopoulou, E., & Moussiades, L. (2020). Chatbots: History, technology, and applications. *Machine Learning with Applications*, 2, 100006. <https://doi.org/10.1016/j.mlwa.2020.100006>
- Agboola, O. P., & Tunay, M. (2023). Urban resilience in the digital age: The influence of information and communication technology for sustainability. *Journal of Cleaner Production*, 428, Article 139304. <https://doi.org/10.1016/j.jclepro.2023.139304>
- Aksoy, C. G., Barrero, J. M., Bloom, N., Davis, S. J., Dolls, M., & Zarate, P. (2022). Working from home around the world. *Brookings Papers on Economic Activity*, 2022(2), 281–360. <https://doi.org/10.1353/eca.2022.a901274>
- Alam, G. M., & Asimiran, S. (2021). Online technology: Sustainable higher education or diploma disease for emerging society during emergency—Comparison between pre- and during COVID-19. *Technological Forecasting and Social Change*, 172, Article 121034. <https://doi.org/10.1016/j.techfore.2021.121034>
- Anthony, L. (2018). *Introducing English for specific purposes*. Routledge.
- Arini, D. N., Hidayat, F., Winarti, A., & Rosalina, E. (2022). Artificial intelligence (AI)-based mobile learning in ELT for EFL learners: The implementation and learners' attitudes. *International Journal of Educational Studies in Social Sciences*, 2(2), 88–95. <https://doi.org/10.53402/ijesss.v2i2.40>
- Arnó-Macià, E., Aguilar-Pérez, M., & Tatzl, D. (2020). Engineering students' perceptions of the role of ESP courses in internationalized universities. *English for Specific Purposes*, 58, 58–74. <https://doi.org/10.1016/j.esp.2019.12.001>
- Asian Development Bank. (2023). *Cambodia's education and skills sector assessment, strategy, and road map*. Asian Development Bank.

- Bahari, A. (2022). Game-based collaborative vocabulary learning in blended and distance L2 learning. *Open Learning: The Journal of Open, Distance and e-Learning*, 37(4), 348–369. <https://doi.org/10.1080/02680513.2020.1814229>
- Benanav, A. (2020). *Automation and the future of work*. Verso.
- Bolton, K., & Jenks, C. (2022). World Englishes and English for specific purposes (ESP). *World Englishes*, 41(4), 495–511. <https://doi.org/10.1111/weng.12604>
- Bui, T. H. (2022). English teachers' integration of digital technologies in the classroom. *International Journal of Educational Research Open*, 3, Article 100204. <https://doi.org/10.1016/j.ijedro.2022.100204>
- Carrión-Martínez, J. J., Luque-de la Rosa, A., Fernandez-Cerero, J., & Montenegro-Rueda, M. (2020). Information and communications technologies (ICTs) in education for sustainable development: A bibliographic review. *Sustainability*, 12(8), Article 3288. <https://doi.org/10.3390/su12083288>
- Chamorro-Premuzic, T. (2023). *I, human: AI, automation, and the quest to reclaim what makes us unique*. Harvard Business Review Press.
- Dhillon, S., & Murray, N. (2021). An investigation of EAP teachers' views and experiences of e-learning technology. *Education Sciences*, 11(2), Article 54. <https://doi.org/10.3390/educsci11020054>
- Dlamini, R., Louw, T. A., & Yu, K. (2024). Digital-centric higher education: An African perspective. In K. Yu & R. Dlamini (Eds.), *Higher education ICT integration in Africa* (pp. 5–24). Routledge. <https://doi.org/10.4324/9781003394877-2>
- Dressen-Hammouda, D. (2025). Ethnography in ESP. In S. Starfield & C. A. Hafner (Eds.), *The handbook of English for specific purposes* (pp. 599–617). Wiley Blackwell. <https://doi.org/10.1002/9781119985068.ch31>
- Ekayati, R., Manurung, I. D., & Yenni, E. (2020). Need an analysis of ESP for a non-English study program. *Language Literacy: Journal of Linguistics, Literature, and Language Teaching*, 4(2), 322–332. <https://doi.org/10.30743/ll.v4i2.3152>
- Fernando, R. (2024). Artificial intelligence capabilities and hyperselfish intelligence, the possible impacts, and why humans need Industry 5.0. In *Industry 4.0 to Industry 5.0: Explorations in the transition from a techno-economic to a socio-technical future* (pp. 113–149). Springer. https://doi.org/10.1007/978-981-99-9730-5_6
- Gollin-Kies, S., Hall, D. R., & Moore, S. H. (2015). *Language for specific purposes*. Palgrave Macmillan.
- Hassan, A. (2023). Developing an ESP-based language learning environment to help students improve critical thinking skills in written output. *Information Sciences Letters*, 12(4), 1131–1140. <https://doi.org/10.18576/isl/120431>
- Hok, C., Phin, K., Chea, S., So, S., Chheang, S., & Huot, S. (2026). Advancing ELT in Cambodia: Sustainability, digital inclusion, and culturally responsive pedagogy. *The Rubrics*, 8(1), 79–99. <https://doi.org/10.5281/zenodo.18149324>
- Huot, S., & Hok, C. (2025a). Enhancing English language teaching for multilingual learners: Leveraging heritage languages in the classroom. *Journal of Social and Educational Research*, 4(1), 87–95. <https://doi.org/10.5281/zenodo.15698964>
- Huot, S., & Hok, C. (2025b). Unpacking the struggle: Linguistic, pedagogical, and cognitive barriers in Cambodian students' English essay writing. *The Context*, 12(4), 149–168. <https://doi.org/10.5281/zenodo.15807401>
- Huot, S., Loch, S., Nget, R., & Em, S. (2025). Exploring multiliteracies in the digital era: A framework for 21st-century learning. *Cambodian Journal of Educational and Social Sciences*, 2(1), 7–27. <https://doi.org/10.69496/cjess.v2i1.50>
- Hutchinson, T., & Waters, A. (1987). *English for specific purposes: A learning-centred approach*. Cambridge University Press.

- Hyland, K. (2014). English for academic purposes. In C. Leung & B. V. Street (Eds.), *The Routledge companion to English studies* (pp. 392–404). Routledge.
<https://doi.org/10.4324/9781315852515-29>
- Hyland, K., & Jiang, F. K. (2021). Delivering relevance: The emergence of ESP as a discipline. *English for Specific Purposes*, 64, 13–25.
<https://doi.org/10.1016/j.esp.2021.06.002>
- Iswati, L., & Triastuti, A. (2021). Voicing the challenges of ESP teaching: Lessons from ESP in non-English departments. *Studies in English Language and Education*, 8(1), 276–293. <https://doi.org/10.24815/siele.v8i1.17301>
- Johnson, M. W., Suvorova, E. A., & Karelina, A. A. (2022). Digitalization and uncertainty in the university: Coherence and collegiality through a metacurriculum. *Postdigital Science and Education*, 4(3), 772–792. <https://doi.org/10.1007/s42438-022-00324-1>
- Kakoulli-Constantinou, E., & Papadima-Sophocleous, S. (2020). The use of digital technology in ESP: Current practices and suggestions for ESP teacher education. *Journal of Teaching English for Specific and Academic Purposes*, 8(1), 17–29.
<https://doi.org/10.22190/JTESAP2001017K>
- Kim, J., & Kim, V. (2024). Unraveling the connections: English proficiency, motivational orientations, and online community engagement among ESP students. *English Teaching*, 79(1), 25–48. <https://doi.org/10.15858/engtea.79.1.202403.25>
- Kolasani, S. (2024). Optimizing with intelligence: Harnessing AI and ML algorithms for real-world solutions. In P. Whig, S. Sharma, S. Sharma, A. Jain, & N. Yathiraju (Eds.), *Practical applications of data processing, algorithms, and modeling* (pp. 190–204). IGI Global Scientific Publishing. <https://doi.org/10.4018/979-8-3693-2909-2.ch015>
- McKinsey Global Institute. (2020). *The future of Asia: Decoding the value and performance of corporate Asia*. McKinsey Global Institute.
- Monteiro, A., & Leite, C. (2021). Digital literacies in higher education: Skills, uses, opportunities, and obstacles to digital transformation. *RED: Revista de Educación a Distancia*, 21(65), 1–20. <https://doi.org/10.6018/red.438721>
- Mostafavi, S., Mohseni, A., & Abbasian, G.-R. (2021). The pedagogical efficacy of ESP courses for Iranian students of engineering from students' and instructors' perspectives. *Asian-Pacific Journal of Second and Foreign Language Education*, 6(1), Article 9. <https://doi.org/10.1186/s40862-021-00109-2>
- Ngo, N. H. H. (2023). Developing an English for specific purposes needs profile among library and information science students in Vietnam. *Vietnam Journal of Education*, 7(2), 125–135. <https://doi.org/10.52296/vje.2023.286>
- Nickerson, C. (2025). English for specific purposes and English as a lingua franca. In S. Starfield & C. A. Hafner (Eds.), *The handbook of English for specific purposes* (2nd ed., pp. 505–524). Wiley Blackwell. <https://doi.org/10.1002/9781119985068.ch26>
- Salmani-Nodoushan, M. A. (2020). English for specific purposes: Traditions, trends, directions. *Studies in English Language and Education*, 7(1), 247–268.
<https://doi.org/10.24815/siele.v7i1.16342>
- Schwab, K. (2016). *The Fourth Industrial Revolution*. World Economic Forum.
- Song, H., Kim, M., Park, D., Shin, Y., & Lee, J.-G. (2023). Learning from noisy labels with deep neural networks: A survey. *IEEE Transactions on Neural Networks and Learning Systems*, 34(11), 8135–8153. <https://doi.org/10.1109/TNNLS.2022.3212597>
- Syakur, A., Zainuddin, H., & Hasan, M. A. (2020). Needs analysis of English for specific purposes (ESP) for vocational pharmacy students. *Budapest International Research and Critics in Linguistics and Education (BirLE) Journal*, 3(2), 724–733.
<https://doi.org/10.33258/birle.v3i2.901>

- Tangredi, S. J., & Galdorisi, G. (2021). *AI at war: How big data, artificial intelligence, and machine learning are changing naval warfare*. Naval Institute Press.
- Tann, K., & Scott, A. (2021). Bridging disciplinary knowledge: The challenge of integrating EAP in business education. *Higher Education*, 81(3), 453–470.
<https://doi.org/10.1007/s10734-020-00551-0>
- Vinothkumar, J., & Karunamurthy, A. (2023). Recent advancements in artificial intelligence technology: Trends and implications. *Quing: International Journal of Multidisciplinary Scientific Research and Development*, 2(1), 1–11.
<https://doi.org/10.54368/qijmsrd.2.1.0003>
- Willcocks, L. (2020). Robo-apocalypse cancelled? Reframing the automation and future of work debate. *Journal of Information Technology*, 35(4), 286–302.
<https://doi.org/10.1177/0268396220925830>
- Wu, S., & Dredze, M. (2020). Are all languages created equal in multilingual BERT? In *Proceedings of the 5th Workshop on Representation Learning for NLP* (pp. 120–130). Association for Computational Linguistics.
<https://doi.org/10.18653/v1/2020.repl4nlp-1.16>

History of instructional leadership in Cambodia: A comprehensive literature review

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Article info

Article history

Received: December 29, 2025

Revised: April 21, 2026

Accepted: June 03, 2026

Keywords

ASEAN

Educational reform

Instructional leadership

Post-conflict education

School leadership

Teacher development

Article type

Narrative review

Abstract

This paper explores the evolution of instructional leadership in Cambodia from the period preceding 1975 to the current day. The analysis encompasses historical trends, policy changes, and present challenges. The research analyzes the evolution of leadership frameworks from colonial hierarchies to post-conflict rebuilding and contemporary changes, using peer-reviewed journals, governmental documents, and publications from international organizations. It highlights the importance of administrative support in educational institutions and the ongoing professional development of educators. It highlights the significance of administrative support within schools and the continuous professional growth of teachers. The main challenges identified were limited autonomy, inadequate leadership development, and ineffective monitoring procedures. The analysis highlights areas requiring further examination, such as the limited number of empirical studies conducted in rural areas, inadequate data regarding the influence of leadership on student performance, and a lack of comparative research involving ASEAN countries. The findings suggest that Cambodia necessitates relevant legislation and professional development programs to improve educational quality and promote instructional leadership.

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1. Introduction

Instructional leadership is crucial for school, teacher, and student success (Hallinger & Bryant, 2013). Cambodian educational leadership has been shaped by colonial governance, post-independence administration, the Khmer Rouge, post-conflict reconstruction, and current reforms (Chandler, 2008; Clayton, 1998; Hallinger & Truong, 2014). You must understand school leadership evolution to identify issues, evaluate policies, and plan for future changes (Hallinger, 2003). This paper provides a comprehensive evaluation of the historical development of instructional leadership in Cambodia, emphasizing current challenges, government initiatives, and prospective avenues for research (Ministry of Education, Youth and Sport [MoEYS], 2005, 2013).

1.1 Background information

The Khmer Rouge destroyed infrastructure, trained staff, and institutional memory in Cambodia's education system (Chandler, 2008). After the 1979 earthquake, schools were reopened, but funding from outside sources caused leadership and teaching issues (Ayres, 2000). Since then, MoEYS has promoted school-based management (SBM), teacher development, and instructional leadership through strategic adjustments (MoEYS, 2024a, 2024b). These changes reveal leadership history, current issues, and opportunities to improve educational governance (Veth & Bon, 2026; Veth et al., 2026).

1.2 Research gap

Despite policy changes, Cambodian instructional leadership research is scarce. Research on the effects of leadership and rural schools on student outcomes is scarce. The lifestyles of school directors are rarely studied, and comparisons between ASEAN nations are rare. By using qualitative research techniques, like in-depth interviews with school administrators, future studies should examine the ways in which leadership affects teachers' self-efficacy and performance. The effectiveness of leadership may be affected by gender and cultural issues, and comparisons with nearby nations may reveal the best practices.

1.3 Objectives of the paper

This paper aims to examine the historical development of instructional leadership in Cambodia by exploring the influence of major political, social, and educational changes on school leadership practices across different historical periods. It also seeks to analyze the evolution of leadership roles and responsibilities, identify gaps and limitations in the existing literature, and provide recommendations for future research and policy development to strengthen instructional leadership in the Cambodian education system.

1.4 Significance of the study

This paper is significant because it provides the first focused historical synthesis of instructional leadership in Cambodia, filling an important gap in the literature and offering a clear understanding of its development across different periods. It also supports policymakers in designing context-sensitive leadership training programs and assists educational researchers by serving as a baseline reference for future studies. This research enhances comparative studies of educational leadership in Southeast Asia by chronicling Cambodia's distinct experience.

2. Literature review

2.1. Theoretical foundation

Before 1975, the way schools were run was based on both colonial rule and the practices established after independence (Ayres, 2000; Clayton, 1998). Leaders were more concerned with maintaining peace and ensuring compliance with government orders than with improving instruction (Clayton, 1998; Dy, 2004). The majority of decisions were taken at higher levels of administration, and the leadership structures were quite hierarchical and centralized (Clayton, 1998; Duggan, 2003). Since this was the case, there was little room for schools to develop new concepts (Ayres, 2000). Because the emphasis was placed on control and bureaucracy, it was difficult for the instructional leadership approaches that are currently in use to develop (Dy,

2004; Hallinger & Truong, 2014). This time around, official leadership roles were established; however, the emphasis placed on administration rather than pedagogy limited the opportunity for teacher development and learning that was oriented toward the student (Duggan, 2003; United Nations Educational, Scientific, and Cultural Organization [UNESCO], 2011).

The Khmer Rouge destroyed the Cambodian education system during their time in power (Ayres, 2000; Chandler, 2008). Schools were shut down, and there were no longer any formal leadership structures (Duggan, 2003; Dy, 2004). This led to the complete breakdown of the educational system (Chandler, 2008). Intellectuals, educators, and educational leaders were systematically targeted and murdered, resulting in a catastrophic leadership void (Chandler, 2008; Kiernan, 2002). During this time, all traditions of instructional leadership were completely broken, making it impossible for school management, pedagogical supervision, or teacher development to continue (Ayres, 2000; Dy, 2004). The lack of leadership and institutional memory made it hard for the country to rebuild its education system after 1979 (Duggan, 2003; UNESCO, 2011). They had to start from scratch with both infrastructure and people who could lead (MoEYS, 2019; UNESCO, 2011).

Following the defeat of the Khmer Rouge, Cambodia faced a significant challenge in the form of repairing the educational system that had been devastated (Ayres, 2000; Dy, 2004; MoEYS, 2019). There was a significant lack of human resources, as evidenced by the fact that principals and other school administrators frequently lacked the necessary qualifications (Ayres, 2000; Duggan, 2003). People in positions of authority during that time period were more concerned with ensuring that everyone had access to education, surviving, and rebuilding than they were with improving the quality of instruction or developing teachers (Brickell, 2017; Dy, 2004). Short-term training programs that provided school leaders with some but not all of the professional development they required were frequently funded and supported by international sponsors (Duggan, 2003; UNESCO, 2011). These initiatives were insufficient to establish long-term educational leadership, but they did help return the school to normal (Ayres, 2000; Brickell, 2017). Thus, the post-war period paved the way for the reopening of schools and the improvement of the system, although issues with the caliber of teaching support and leadership persisted (MoEYS, 2019; UNESCO, 2011).

The MoEYS has been working on strategies to improve schools and their leaders since 2005 through continuous policy reforms (MoEYS, 2019, 2021). These enhancements emphasize school-based administration, decentralization, and instructional leadership (Hallinger & Truong, 2014; MoEYS, 2013). This marked a shift from post-conflict leadership centered on survival to teaching and professional aims (MoEYS, 2013; UNESCO, 2015). The research implies that school leaders should be more involved in helping teachers grow, improving teaching, and preparing the school's future (Bush, 2011; Hallinger & Truong, 2014). Leader training programs have been established through collaboration with international funders, NGOs, and development organizations (UNESCO, 2015; World Bank, 2018). These programs prepare administrators to oversee, evaluate curricula, and assess performance (MoEYS, 2005, 2013; World Bank, 2018).

Despite these efforts, Cambodian instructional leadership is not changing consistently or extensively. Most school administrators receive limited professional development, which inadequately prepares them for effective educational management. Forms, reports, and other administrative tasks take principals' time away from observing classes, training teachers, and enhancing teaching methods. School leaders lack the freedom to adapt their strategies to their schools and communities (Hallinger & Truong, 2014). Thus, while policy reforms have created

instructional leadership frameworks, structural and capacity-related barriers limit their impact on teaching and learning (Veth & Bon, 2026; Veth et al., 2026).

Table 1. The theoretical foundation and evolution of instructional leadership in Cambodia

Period	Years	Leadership characteristics	Key challenges	Notable developments	Source
Pre-1975	Before 1975	Centralized, hierarchical, bureaucratic; focus on administrative compliance	Little teacher development, innovation, or top-down decision-making	Official leadership responsibilities were developed; instructional leadership was not prioritized.	Ayres (2000) and Clayton (1998)
Khmer Rouge	1975–1979	Leadership structures destroyed; schools closed	Complete collapse of the education system; targeting of educators and intellectuals; no instructional leadership	Complete system rebuilding was required.	Chandler (2008), Kiernan (2002), and MoEYS (2019)
Post-conflict reconstruction	1979–1999	Limited professional competence; focus on survival and access to education	Underqualified leaders, short-term training is insufficient; teacher development is neglected.	Reopened schools, fundamental administrative tasks, and international training support.	Ayres (2000), Brickell (2017), and Dy (2004)
Modern reform era	2000–Present	Emphasis on SBM, decentralization, and instructional leadership	Limited professional development; administrative burden; constrained flexibility for leaders	Training programs for leaders on teacher growth, curriculum supervision, and performance evaluation; policy frameworks.	Ayres (2000), Hallinger and Truong (2014), and MoEYS (2013)

Since 2005, Cambodia’s MoEYS has implemented several significant reforms and policy frameworks to enhance the educational environment in schools. The education strategic plans (ESP), the establishment of school director standards, the continuous professional development (CPD) policy, and the revised teacher professional standards constitute these initiatives. The strategic plan for teacher education reform in Cambodia enhances teacher training and professional development. These policies jointly augment the effectiveness of Cambodia’s educational institutions, strengthen instructional leadership, and promote continuous educational progress (MoEYS, 2016, 2017).

Table 2. Key Cambodian policies on instructional leadership

Policy/guideline	Year/period	Focus/key provisions	Relevance to instructional leadership	Source
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ESP	2019–2023; 2024–2028	SBM, model school standards, quality education	Promotes school autonomy, governance, and leadership capacity	MoEYS (2019, 2024a)
CPD policy	2017	Lifelong learning, CPD management, training for teachers and school leaders	Supports school leaders' professional development and instructional supervision	MoEYS (2017)
Teacher professional standards	2016–2021	Professional knowledge, practice, development, and ethics	Provides a framework for teacher quality; guides school leaders in supervision and evaluation	MoEYS (2016)
School director standards	2016–2020	Leadership capacity, curriculum management, innovation, and community engagement	Defines competencies for school leaders to act as instructional leaders	MoEYS (2016)
SBM/decentralization	2019–Present	Autonomy in school management, budgeting, and teaching	Empowers principals to lead instruction and make school-level decisions	MoEYS (2019)
Teacher policy action plan (TPAP)	2024–2030	Transformative leadership, mentoring, and career pathways	Strengthens leadership skills and instructional guidance of school directors	MoEYS (2024a)
Strategic plan for teacher education reform (STEPCam)	2024–2030	Teacher preparation, CPD, ICT integration	Builds leadership capacity for school directors and teacher educators	MoEYS (2024b)

Instructional leadership

According to Hallinger (2011), the term instructional leadership (IL) describes the behaviors and responsibilities of school directors that are aimed at enhancing the quality of teaching and learning by cultivating a culture that values excellence and the efficacy of teachers. According to Hallinger and Truong (2014), it places an emphasis on directing and supporting instructors in order to successfully align instructional approaches with institutional objectives. This is accomplished through the utilization of fundamental competencies such as motivation, communication, and confidence. As a result of increasing responsibilities and academic expectations, IL has emerged as a central topic of discussion in the field of school reform and leadership studies (Hallinger, 2005). The students in schools need to be prepared for the global, technological, and cultural challenges of the 21st century. According to Hoy and Hoy (2013), in order for students to be successful in a worldwide environment, they need to possess superior information, technical, and creative abilities. Instructional leaders are responsible for evaluating teachers, having civil talks with them, and advocating for improved teaching methods in order to satisfy the requirements of the students. According to Pan et al. (2015),

they help schools achieve success by establishing high standards, establishing goals, and encouraging stakeholder engagement.

The findings of several studies (Brazer & Bauer, 2013; Neumerski, 2013; Rigby, 2014; Stronge et al., 2008) indicate that instructional leadership is associated with an improvement in both student success and instruction. Instructional leaders are responsible for assisting teachers, providing them with feedback, and providing them with the authority to adapt to schooling in the 21st century.

2.2 Defining the school mission

According to the findings of Hallinger and Murphy (1985), one of the most important aspects of being an effective instructional leader is the establishment of a distinct school goal. According to Leithwood et al. (2004) and Robinson et al. (2008), this suggests that the director is responsible for shaping the character of the school and creating a feeling of shared purpose at the institution, which in turn influences decisions, policies, and practices. When the aim of the school is made apparent, there is a greater likelihood that all parties involved, including teachers, students, staff, and parents, will support the school's academic goals and fundamental principles (Fullan, 2001; Marzano et al., 2005). According to Spillane et al. (2004), it instructs both teachers and students on what they should be doing, and it implies that everyone is accountable for their actions. Through the use of logic, educators are able to design classes that are in line with the objectives of the school (Day et al., 2016). With the help of this approach, students will be motivated to strive toward achieving significant educational goals. Workers are able to collaborate with one another to achieve common objectives, as well as discuss the most effective methods for performing their tasks and finding solutions to issues that arise in the classroom (Bryk et al., 2010). Hargreaves and Fink (2006) state that the accomplishment of this purpose offers us a way of evaluating programs, determining how to make use of resources, fostering professional growth, and increasing the quality of educational outcomes and outcomes in general. It is necessary for parents and the community to be informed of what is taking place at the school (Coleman, 1988; Epstein, 2011).

This is especially important to foster trust, involvement, and a pleasant culture at the institution. The school can enjoy continuous academic development and advancement if it has a well-defined aim (Robinson, 2011; Sergiovanni, 2005). This is because having a well-defined objective brings the entire school community together.

2.3 Framing clear school goals

Besides goal-setting, school directors function as data analysts and facilitators. Research demonstrates that school leaders who utilize data-driven decision-making can enhance instructional practices and student outcomes (Hallinger & Murphy, 1985). School directors develop a goal statement and guide the school community in its pursuit. This method assesses the school's strengths and areas for enhancement through the analysis of quantitative and qualitative data, such as test scores, attendance records, disciplinary incidents, and stakeholder feedback. This evidence-based method guarantees that objectives target the most critical problems (Hallinger & Murphy, 1985). This statistical method ensures that the established objectives prioritize the most significant issues. The plan highlights the necessity of enhancing the number of individuals reading at an advanced level, calling on educators, business owners, and community stakeholders to recognize this goal. The objectives of the school should require collaboration among all relevant stakeholders. This method promotes collaboration among all stakeholders to improve the results (Hallinger & Murphy, 1985). This concept facilitates the

adjustment of our objectives as we gain knowledge and improve our understanding. Data must be utilized to evaluate and modify the school's objectives to foster ongoing development and alignment with its mission (Schildkamp, 2019). This guarantees comprehension and motivation among all individuals to achieve the objective.

2.4 Communicating clear school goals

School directors set goals, analyze statistics, and facilitate. Research shows that data-driven school directors improve teaching and student performance. The school directors help the community create a goal statement by analyzing quantitative and qualitative data like test scores, attendance, disciplinary records, and stakeholder feedback to determine what the school does well and what it could improve. This evidence-based approach ensures goals address the most pressing issues (Hallinger & Murphy, 1985). With this statistical strategy, goals always matter most. The strategy requires teachers, workers, and community members to set goals like increasing reading levels. Set school goals with all concerned parties. This aids teamwork to improve it. Our goals might change as we learn and improve with this idea. Data should be used to review and adjust goals to keep the school improving and staying loyal to its mission. People are motivated to work toward the objective when they know it (Hallinger & Murphy, 1985).

2.5 Managing the instructional programs

The management of the instructional program (MIP) is a component of instructional leadership, as stated by Hallinger and Murphy (1985). Through the supervision of classroom instruction, the execution of the curriculum, and the accomplishments of students, the school director ensures that teaching and learning are carried out in an efficient manner (Hallinger & Murphy, 1985; Murphy, 2015). In this role, school directors are responsible for ensuring that the quality of instruction is maintained and for integrating school practices with educational objectives. According to Ruebling et al. (2004), effective administration of instructional programs not only improves support for teachers but also increases the likelihood that students will have consistent, coherent learning experiences.

2.6 Supervising and evaluating instruction

Monitoring and reviewing education are important, but supporting educators' professional development is crucial. Smart school directors provide teachers with comments after witnessing their work to help them think critically and improve (Marzano, 2003; Supovitz & Klein, 2003). They bridge the gap between instructional monitoring and teacher development by helping instructors identify their strengths and weaknesses and ensure that their teaching strategies match what students need to learn. The formative evaluation and supportive tracking conducted by school directors enhance teachers' self-confidence, motivation, and classroom performance (Hallinger & Murphy, 1985).

2.7 Coordinating the curriculum

Hallinger and Murphy (1985) suggest that school directors are crucial to meeting the school's goals and ensuring program logic (Leithwood & Jantzi, 2005). They facilitate collaborative projects that improve students' education and help teachers agree on learning goals (Fullan, 2001). The director also reviews teaching materials, provides resources, and employs pacing principles or scope-and-sequence models to ensure course consistency and no gaps (Marzano et al., 2005). Good curriculum design helps teachers align class plans with school goals and

supports research-based teaching approaches (Hattie, 2009). Promote teacher collaboration to boost student achievement in all disciplines and teaching quality (Robinson et al., 2008).

2.8 Monitoring student progress

To ensure that children are able to acquire knowledge in an efficient manner, it is the responsibility of school directors to keep track of the developmental progress of their pupils. Data analysis is performed with the purpose of identifying areas of learning that require intervention, as well as patterns and gaps in learning. According to Mandinach and Gummer (2016), progress monitoring systems offer teachers a useful tool that can be utilized in the process of modifying the curriculum, delivering targeted interventions, and tailoring instruction to conform to the needs of a varied student body.

2.9 Fostering a positive learning climate

Hallinger and Murphy (1985) emphasized that good educational leadership entails managing the administration and creating a positive learning environment (FPLC). The major purpose of this method is to help students grow intellectually, socially, and emotionally by giving them a secure, polite, and inspirational place to learn. When school leaders create an atmosphere of trust and collaboration, teachers, staff, and students are more involved, respectful, and devoted to learning. They also constructively deal with behavioral issues, create a space that is both enjoyable and productive, and acknowledge and celebrate successes. School administrators should make a healthy educational atmosphere a top priority. This will make the school a better place for teaching and learning, which will boost teacher morale and student performance (Day et al., 2016; Leithwood & Jantzi, 2006; Robinson et al., 2008).

2.10 Creating a positive school climate

Hallinger and Murphy (1985) suggested that school directors go beyond managing staff. Instructors and students necessitate an appropriate learning environment. Given the importance of academic and social development, schools prioritize creating a safe, welcoming, and enjoyable environment for students. They enforce laws, promote ethics, cooperation, and accountability. Effective communication, recognition, and the constructive management of classroom behavior and challenges maintain student engagement and confidence. When supported, praised, and provided with professional development, teachers feel capable. This boosts performance and training. These methods help school directors grow students and teachers. Cambodia's limited resources and diverse culture require schools to prioritize health. Team members are inspired to innovate, overcome challenges, and improve.

2.11 Protecting instructional time

An effective instructional leader knows how to protect teaching time. School directors need to do more than just keep to a schedule. They also need to make sure that teaching and learning hours aren't disrupted in ways that make kids less motivated and instructors less productive. This involves not making unnecessary comments, having management meetings outside of school hours, and making sure there are clear procedures for how to handle visits from students or parents. School directors show that they care about teaching and respect teachers' and students' time by making sure that instructors and students have uninterrupted time in the classroom. When instructional time is always preserved, it also helps teachers do a better job, makes classes more focused, and increases overall student performance. Moreover, it enhances teachers' confidence in their capabilities and job performance by providing them with a

structured environment conducive to effective teaching and fostering encouragement in their responsibilities (Hallinger & Murphy, 1985; Leithwood & Jantzi, 2006; Robinson et al., 2008).

2.12 Promoting professional development

School directors need to actively encourage their teachers to take part in professional development so that they can maintain teaching at a high level and encourage an attitude of constantly becoming better. When money is invested in teachers' professional advancement, it makes human capital better. This helps the school run better as a whole. As part of this, instructors should be permitted to go to classes, seminars, conferences, and training. Teachers should also learn together through peer observations, team planning, and mentorship initiatives. School directors aim for frequent professional improvement to show that they care about their workforce. This makes instructors feel better about what they can do and makes them want to think about their job and continually want to do better. Hallinger and Murphy (1985), Leithwood and Jantzi (2005), Robinson et al. (2008), and Day et al. (2016) underscore the essential function of instructional leaders in facilitating continuous teacher professional development.

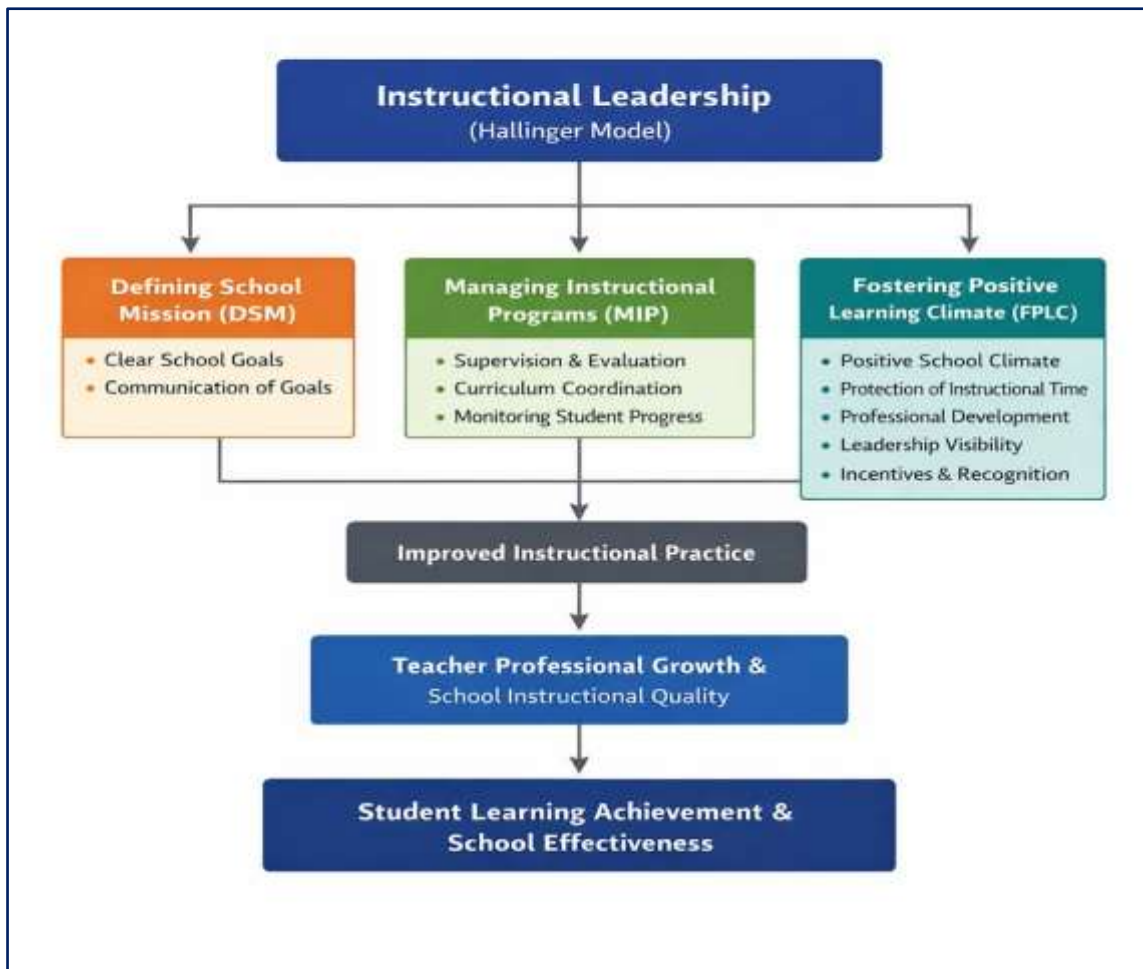
2.13 Maintaining high visibility

A competent instructional leader must be visible in school! School directors shouldn't constantly be in the office. Instead, they should greet students and parents, watch lessons and help out, and attend after-school programs. The director's presence demonstrates they care about school operations and learning. School directors enhance communication, foster open dialogue, and highlight their role as instructional leaders rather than just managers. Prominent leaders are readily accessible. The school directors can improve teachers' performance, confidence, and overall school success through consistent presence and active participation. Hallinger and Murphy (1985), Leithwood and Jantzi (2005), and Robinson et al. advocate for the enhancement of trust and relationships. Visible leaders enhance approachability, promote open dialogue, and emphasize instructional leadership rather than administrative tasks. Increased visibility simplifies leader communication. School directors can boost teacher confidence, performance, and school effectiveness by visiting regularly (Hallinger & Murphy, 1985; Leithwood & Jantzi, 2005). Effective instructional leadership requires school directors' visibility.

2.14 Providing incentives and recognition

Reward and recognition programs for educators and students foster a positive, efficient, and motivating educational atmosphere. Incentives enhance performance and promote school pride, belonging, and motivation. Studies indicate that verbal praise, public recognition, and personal notes of appreciation exert a more enduring influence than material rewards (Hallinger & Murphy, 1985; Leithwood & Jantzi, 2005; Robinson et al., 2008). Recognizing teachers through meetings, newsletters, or professional development enhances enthusiasm, innovation, and professional standards, which in turn positively influences student learning (Robinson et al., 2008). The acknowledgment of improvements and achievements fosters students' self-regulation, collaboration, and discipline, subsequently encouraging a growth mindset and increased engagement (Leithwood & Jantzi, 2005). Structured appreciation fosters a goal-oriented, supportive educational environment, enhancing collaboration and accountability. The strategic implementation of rewards and incentives leads to improved school success through increasing the confidence, motivation, and self-worth of both teachers and students (Hallinger & Murphy, 1985; Robinson et al., 2008).

Figure 1. Framework of instructional leadership



Source: Hallinger and Murphy (1985)

3. Methodology

3.1 Research design

The historical development of instructional leadership in Cambodia is examined in this paper using a qualitative systematic literature review methodology across four key historical periods: pre-1975, the Khmer Rouge era (1975–1979), post-conflict reconstruction (1979–1999), and the current reform period (2000–present). This method was chosen as it allows for an in-depth analysis of leadership trends, changes in educational policy, and governance structures during significant socio-political shifts. This also aids in identifying shortcomings within institutions, frameworks, and leadership patterns that have negatively impacted education in Cambodia throughout the years (Ayres, 2000; Chandler, 2008; Clayton, 1998).

3.2 Samples and sampling techniques

This literature analysis analyzed a selection of academic and policy materials regarding instructional leadership, educational reform, and school governance in Cambodia (Ayres, 2000; Hallinger & Truong, 2014; MoEYS, 2013; UNESCO, 2015). A purposive sampling strategy was employed to select the sources deemed most relevant and reliable (Duggan, 2003; Dy, 2004). The materials comprised peer-reviewed research articles, strategic plans from the

MoEYS, frameworks endorsed by UNESCO, as well as national policy standards and leadership guidelines (MoEYS, 2005; World Bank, 2018). Four criteria were established for selection: the work needed to be published in 1990, it had to have a direct connection to Cambodia and instructional leadership, it had to be accessible in English or Khmer, and it had to align with the primary historical periods addressed in the study (Ayres, 2000; Hallinger & Truong, 2014).

3.3 Instruments

The primary research instrument was a document analysis matrix employed to collect and classify information regarding instructional leadership from the chosen sources. The matrix has important columns including author(s) and year, historical period, leadership traits, leadership focus (administration, survival, reform, or instructional), obstacles that were found, and policy implications. Also, Tables 1 and 2 in the literature review part were analytical summaries that showed important historical trends and big government changes that had to do with leadership development in Cambodia.

3.4 Data collection procedures

The data collection process employed an accurate method comprising five distinct stages. Sources were identified through academic databases and publications from MoEYS. These publications include documents from 2005 to 2024. Materials were assessed for their applicability to instructional leadership in Cambodia. Third, selected documents underwent critical analysis, and essential points were recorded. Fourth, information about leadership was extracted and documented in the analysis matrix. Finally, the data were classified into historical and thematic categories.

All materials were organized into four main phases: pre-1975, 1975–1979, 1979–1999, and the post-2000 reform period. Only credible, peer-reviewed, or officially recognized documents were included to ensure the reliability of the findings (MoEYS, 2016, 2017).

3.5 Data analysis

Two primary methods of observation were utilized. Theme analysis was utilized to identify recurring patterns in school administration and leadership. Several key themes emerged, including centralized authority and hierarchy, leadership flaws, management's focus on survival, school-based leadership, institutional constraints, and opportunities for professional development among educators. Previous studies, particularly those by Ayres (2000), Clayton (1998), and Chandler (2008), have laid the groundwork for understanding these challenges. A chronological analysis was conducted to examine the progression of leadership styles throughout history. The findings demonstrate a steady shift from autocratic and ineffective systems to leadership models emphasizing reform and guidance, especially in the post-2000 period (Hallinger & Truong, 2014; MoEYS, 2019). This paper contextualizes current leadership challenges in Cambodia within a broad historical and political framework, employing a dual analytical approach.

3.6 Ethical consideration

This was a study based on documents; hence, there were no people involved. Ethical standards included fully citing all sources, without plagiarizing or changing data, using the APA 7th

reference system correctly, and respecting information from institutions and governments. These steps guaranteed that the study process was open, trustworthy, and honest.

4. Findings

4.1 Historical evolution of instructional leadership

Table 3. Four distinct leadership phases

Period	Key finding	Source
Pre-1975	Hierarchical and bureaucratic leadership focused on compliance.	Clayton (1998)
1975–1979	Destruction of the leadership system.	Chandler (2008)
1979–1999	Survival-based leadership with limited capacity.	Ayres (2000)
2000–Present	Shift to instructional and school-based leadership.	MoEYS (2013, 2024b)

This progression demonstrates Cambodia’s transition from institutional collapse to a reform-oriented leadership environment.

4.2 Modern challenges in leadership

Despite the fact that numerous advances are continuously being made, the leadership of schools in Cambodia continues to face a great deal of challenges that render it less effective (UNESCO, 2021). One of the most significant issues is that Continuing Professional Development (CPD) training is only offered for a limited amount of time and is not always accessible (MoEYS, 2019). This makes it difficult for school leaders to develop instructional leadership abilities that are both long-lasting and profound. If they do not receive consistent, high-quality training, many principals and senior teachers struggle to develop the abilities necessary to assist students in learning and to teach effectively (Hallinger & Truong, 2014).

Not only that, but when school administrators have an excessive number of administrative responsibilities, it becomes difficult for them to concentrate on things like supervising instruction, mentoring teachers, and enhancing the curriculum (Hallinger & Truong, 2014). Because choices are typically made at a centralized level, this issue is made much more difficult to deal with because schools do not have a great deal of autonomy (MoEYS, 2019). As a result of this, school administrators are unable to readily establish new rules, reorganize existing resources, or implement strategies that are unique to their schools in order to fulfill their requirements.

This limitation is especially obvious in rural areas, where access to educational resources, professional networks, and leadership training is significantly more restricted than in urban areas (UNESCO, 2021). As a consequence of this, leadership strategies can be found in rural locations, although they are typically not as well-developed or consistent as those found in urban settings. Despite the fact that there have been policy actions with the intention of

improving school leadership systems, these findings provide credence to the opinion expressed by Hallinger and Truong (2014), which states that instructional leadership in Cambodia remains inconsistent and lacking.

Table 4. Major challenges affecting the development and implementation of instructional leadership

No.	Key challenges	Description of the problem	Impact on instructional leadership	Source
1.	Short and irregular CPD training	Professional development programs for school leaders are limited in duration and lack consistency.	Weakens sustained leadership skill development and limits instructional improvement	Darling-Hammond et al. (2017)
2.	Excessive administrative responsibilities	School leaders spend most of their time on paperwork and management tasks	Reduces focus on classroom supervision, mentoring, and instructional support	Leithwood, Kenneth et al. (2004)
3.	Weak school-level autonomy	Decision-making remains centralized at higher levels	Limits leaders' ability to respond to school-specific needs and innovate	World Bank (2018)
4.	Limited leadership practice in rural areas	Rural schools have fewer training opportunities and professional networks	Creates unequal leadership development and inconsistent practices	UNESCO (2015)
5.	Inconsistent instructional leadership.	Leadership practices are uneven across regions and schools.	Slows overall progress in teaching quality and learning outcomes.	Hallinger and Truong (2014)

5. Discussion

This paper's findings correspond with existing literature on post-conflict and developing educational systems. The political instability and genocide in Cambodia significantly disrupted leadership development, leading to lasting damage to institutional memory and professional capacity, as noted by Ayres (2000) and Chandler (2008).

MoEYS has enacted changes through the CPD, SBM, ESP, and teacher performance appraisal process frameworks (MoEYS, 2005, 2013). However, effective instructional supervision is hindered by time constraints, administrative pressures, and inadequate decentralization (Hallinger & Truong, 2014). This paper provides a temporal synthesis that illustrates the direct impact of political history on the professional identity and roles of school leaders in Cambodia.

6. Conclusion and recommendation

This paper effectively accomplished its objectives by systematically documenting the historical context of instructional leadership in Cambodia and analyzing the key political and educational factors that have influenced its development over time. The analysis demonstrates the impact of wartime conditions, post-war reconstruction, and educational reform initiatives on the roles, duties, and practices of school administrators. This illustrates the importance of aligning national policy changes with modifications in school operations, teacher expectations, and

professional standards. The findings align with the research conducted by Clayton (1998), Chandler (2008), Ayres (2000), and MoEYS (MoEYS, 2013), which highlight the substantial impact of Cambodia's historical, political, and institutional contexts on the evolution of instructional leadership.

7. Limitations and future studies

This paper is primarily limited by its reliance on document-based sources, including policy papers, historical records, and published literature. No direct data were acquired through interviews, classroom observations, or field-based case studies. Thus, the findings reflect dominant perspectives rather than the genuine experiences of school administrators and educators. This limits the depth of understanding of the actual execution of instructional leadership in daily educational environments. The perspectives of school leaders in remote and isolated areas are inadequately represented due to a lack of research and documentation in these settings. This highlights a significant shortcoming identified in the literature: the lack of empirical and context-specific studies focused on rural Cambodian schools. The study did not include quantitative data to assess the influence of leadership on teacher efficacy and student outcomes, thereby limiting the capacity to draw statistical conclusions regarding leadership effectiveness.

To address these issues, future studies should include qualitative interviews with urban and rural school administrators, teachers, and educational authorities. This would help identify instructional leadership issues and successes. Leadership depends on teacher self-efficacy, performance, and passion. Researchers and politicians should study Cambodia and other ASEAN nations to understand their issues, leadership, and education. Interviews, surveys, observations, and document analysis will illuminate Cambodia's historical, political, and educational contexts for instructional leadership. These principles support evidence-based leadership development and fill research gaps.

Acknowledgments

The authors wish to convey their profound appreciation to the reviewers and the editing team of CJESS for their evaluation and proofreading of the manuscript. This piece would not have emerged in academic circles without their assistance. Consequently, their contributions are seen as indispensable and beneficial to society at large, particularly within the academic community of research and publication.

Conflict of interest

No potential conflict of interest was reported by the authors.

Funding

The authors received no financial support for the study, authorship, and/or publication of this study.

Declaration of AI usage

The authors used Grammarly to polish the language in some parts of the article. However, they declared that the article's content is entirely theirs and not generated by any means.

References

- Ayres, D. M. (2000). *Traditions of modernity: Education in the Kingdom of Cambodia, 1863–1953*. University of Hawai'i Press.
- Brazer, S. D., & Bauer, S. C. (2013). Preparing instructional leaders. *Educational Administration Quarterly*, 49(2), 276–309.
- Brickell, K. (2017). Home truths: Gender and colonial modernity in twentieth-century Cambodia. *Gender, Place & Culture*, 24(7), 998–1015.
<https://doi.org/10.1080/0966369X.2016.1276887>
- Bryk, A. S., Sebring, P. B., Allensworth, E., Luppescu, S., & Easton, J. Q. (2010). *Organizing schools for improvement: Lessons from Chicago*. University of Chicago Press.
- Bush, T. (2011). *Theories of educational leadership and management* (4th ed.). Sage.
- Chandler, D. P. (2008). *A history of Cambodia* (4th ed.). Westview Press.
- Clayton, T. (1998). *Education and the politics of language: Hegemony and pragmatism in Cambodia, 1979–1989*. Hong Kong University Press.
- Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94, S95–S120. <https://doi.org/10.1086/228943>
- Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). *Effective teacher professional development*. Learning Policy Institute. <https://doi.org/10.54300/122.311>
- Day, C., Gu, Q., & Sammons, P. (2016). The impact of leadership on student outcomes: How successful school leaders use transformational and instructional strategies to make a difference. *Educational Management Administration & Leadership*, 44(2), 221–258.
- Duggan, S. J. (2003). *Schooling in Cambodia*. International Institute for Educational Planning, UNESCO.
- Dy, S. S. (2004). *Educational reform in Cambodia: Problems and prospects*. Cambodia Development Resource Institute.
- Epstein, J. L. (2011). *School, family, and community partnerships: Preparing educators and improving schools* (2nd ed.). Westview Press.
- Fullan, M. (2001). *Leading in a culture of change*. Jossey-Bass.
- Hallinger, P. (2003). Leading educational change: Reflections on the practice of instructional and transformational leadership. *Cambridge Journal of Education*, 33(3), 329–352.
<https://doi.org/10.1080/0305764032000122005>
- Hallinger, P. (2005). Instructional leadership and the school principal: A passing fancy that refuses to fade away. *Leadership and Policy in Schools*, 4(3), 221–239.
<https://doi.org/10.1080/15700760500244793>
- Hallinger, P. (2011). Leadership for learning: Lessons from 40 years of empirical research. *Journal of Educational Administration*, 49(2), 125–142.
<https://doi.org/10.1108/09578231111116699>
- Hallinger, P., & Bryant, D. A. (2013). Mapping the terrain of educational leadership and management in East Asia. *Journal of Educational Administration*, 51(5), 618–637.
<https://doi.org/10.1108/JEA-05-2012-0066>
- Hallinger, P., & Murphy, J. (1985). Assessing the instructional management behavior of principals. *The Elementary School Journal*, 86(2), 217–247.
<https://doi.org/10.1086/461445>
- Hallinger, P., & Truong, D. T. (2014). Exploring the contours of context and leadership effectiveness in Vietnam. *Leading and Managing*, 20(2), 43–59.
- Hargreaves, A., & Fink, D. (2006). *Sustainable leadership*. Jossey-Bass.
- Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.

- Hoy, W. K., & Hoy, A. W. (2013). *Instructional leadership: A learning-centered guide* (4th ed.). Pearson.
- Kiernan, B. (2002). *The Pol Pot regime: Race, power, and genocide in Cambodia under the Khmer Rouge, 1975–1979* (2nd ed.). Yale University Press.
- Leithwood, K., & Jantzi, D. (2005). Transformational school leadership effects: A replication. *Leadership and Policy in Schools*, 4(3), 177–199. <https://doi.org/10.1080/15700760500244769>
- Leithwood, K., & Jantzi, D. (2006). Transformational school leadership for large-scale reform: Effects on students, teachers, and their classroom practices. *School Effectiveness and School Improvement*, 17(2), 201–227. <https://doi.org/10.1080/09243450600565829>
- Leithwood, K., Louis, K. S., Anderson, S., & Wahlstrom, K. (2004). *How leadership influences student learning*. The Wallace Foundation.
- Mandinach, E. B., & Gummer, E. S. (2016). What does it mean for teachers to be data literate? *Educational Researcher*, 45(2), 62–67.
- Marzano, R. J. (2003). *What works in schools: Translating research into action*. ASCD.
- Marzano, R. J., Waters, T., & McNulty, B. A. (2005). *School leadership that works: From research to results*. ASCD.
- Ministry of Education, Youth and Sport [MoEYS]. (2005). *Education strategic plan 2006–2010*.
- Ministry of Education, Youth and Sport [MoEYS]. (2013). *Education strategic plan 2014–2018*.
- Ministry of Education, Youth and Sport [MoEYS]. (2016). *School director standards*.
- Ministry of Education, Youth and Sport [MoEYS]. (2017). *Continuous professional development policy for teachers*.
- Ministry of Education, Youth and Sport [MoEYS]. (2019). *Education strategic plan 2019–2023*.
- Ministry of Education, Youth and Sport [MoEYS]. (2021). *Teacher professional standards* (Rev. ed.).
- Ministry of Education, Youth and Sport [MoEYS]. (2024a). *Education strategic plan 2024–2028*.
- Ministry of Education, Youth and Sport [MoEYS]. (2024b). *Strategic plan for teacher education reform in Cambodia (STEPCam), 2024–2030*.
- Murphy, J. (2015). *Instructional leadership and school reform*. Routledge.
- Neumerski, C. M. (2013). Rethinking instructional leadership: Review of research findings and future directions. *Educational Administration Quarterly*, 49(2), 310–347. <https://doi.org/10.1177/0013161X12468148>
- Pan, Y., Nyeu, F. Y., & Chen, J. S. (2015). Principal instructional leadership and teacher practices: Mediating effects of teacher self-efficacy and learning orientation. *Educational Management Administration & Leadership*, 43(5), 740–760. <https://doi.org/10.1177/1741143213513182>
- Rigby, J. G. (2014). Three logics of instructional leadership. *Educational Administration Quarterly*, 50(4), 610–644. <https://doi.org/10.1177/0013161X13505290>
- Robinson, V. M. J. (2011). *Student-centered leadership*. Jossey-Bass.
- Robinson, V. M. J., Lloyd, C. A., & Rowe, K. J. (2008). The impact of leadership on student outcomes: An analysis of the differential effects of leadership types. *Educational Administration Quarterly*, 44(5), 635–674. <https://doi.org/10.1177/0013161X08321509>

- Ruebling, C. E., Stow, S. B., Kayona, F. A., & Clarke, N. A. (2004). Instructional leadership: An essential ingredient for improving student learning. *The Educational Forum*, 68(3), 243–253. <https://doi.org/10.1080/00131720408984635>
- Schildkamp, K. (2019). Data-based decision-making for school improvement: Research insights and gaps. *Educational Research*, 61(3), 257–273. <https://doi.org/10.1080/00131881.2019.1625716>
- Sergiovanni, T. J. (2005). *The principalship: A reflective practice perspective* (5th ed.). Allyn & Bacon.
- Spillane, J. P., Halverson, R., & Diamond, J. B. (2004). Toward a theory of leadership practice: A distributed perspective. *Journal of Curriculum Studies*, 36(1), 3–34. <https://doi.org/10.1080/0022027032000106726>
- Stronge, J. H., Richard, H. B., & Catano, N. (2008). *Qualities of effective principals*. ASCD.
- Supovitz, J. A., & Klein, V. (2003). Mapping a course for improved student learning: How innovative schools systematically use student performance data to guide improvement. *Educational Evaluation and Policy Analysis*, 25(4), 327–356.
- United Nations Educational, Scientific, and Cultural Organization [UNESCO]. (2011). *Cambodia education sector analysis: Key policy issues*.
- United Nations Educational, Scientific, and Cultural Organization [UNESCO]. (2015). *Education for all 2015 national review report: Cambodia*.
- United Nations Educational, Scientific, and Cultural Organization [UNESCO]. (2021). *Education and leadership challenges in rural and developing contexts*.
- Veth, S., & Bon, S. (2026). Impact of instructional leadership on teacher self-efficacy and job performance: A literature review. In S. Em (Ed.), *Digital leadership and innovation in ASEAN education* (pp. 359–422). IGI Global Scientific Publishing. <https://doi.org/10.4018/979-8-2600-1142-3.ch011>
- Veth, S., Bon, S., & Kurniawan, G. F. (2026). Leadership styles: A comprehensive review of twenty-one approaches. In S. Em (Ed.), *Digital leadership and innovation in ASEAN education* (pp. 187–236). IGI Global Scientific Publishing. <https://doi.org/10.4018/979-8-2600-1142-3.ch007>
- World Bank. (2018). *Cambodia: Education quality improvement project*. World Bank.

Implementing cooperative and work-integrated education in a medium-sized workplace: Policies, operational plans, and procedures

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Article info

Article history

Received: November 06, 2024

Revised: March 11, 2026

Accepted: April 18, 2026

Keywords

CWIE

Educational partnership

Experiential learning

Workplace learning

Workplace owner

Article type

Mini review

Abstract

To eliminate the gap between education and employment, integrating education with work through cooperative and work-integrated education (CWIE) has become essential. The purpose of the short paper is to design a comprehensive plan that can be applicable to a workplace that is of medium size and is in the process of adopting the provision of CWIE. The plan includes the development of essential policies, strategies, and procedures that can be applicable to the provision of CWIE. The purpose is to enable students to participate in significant learning experiences that enhance their skills and knowledge, and, in the workplace, to gain new insights and develop talents.

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1. Introduction

Cooperative and Work-Integrated Education (CWIE) is a form of experiential learning in which students gain work experience that supports their academic learning. CWIE has proven successful in building students' professional competencies while also providing value to the organization by developing future employees who are not only qualified but also aligned with industry requirements (Em & Khampirat, 2025a, 2025b; Johnston, 2021).

Upon the invitation to develop CWIE in the workplace, the medium-sized organization has clearly defined the policies related to CWIE as part of the organizational or industry policies (Em & Khampirat, 2026). This manuscript will outline the development and implementation of CWIE policies and operational plans in the workplace to ensure the organization is aligned with the national and international CWIE standards (Em & Khampirat, 2025a, 2025b).

2. CWIE policies for the workplace

In order to successfully implement CWIE, an organization must develop policies that promote the integration of theoretical learning with work experience (Em & Phann, 2024). One such policy is the integration of learning and work, whereby CWIE will ensure that the tasks allocated to the student are closely related to their areas of study, enabling them to apply their theoretical knowledge in a practical setting. This is because this integration is likely to achieve

the required learning outcomes by connecting theoretical knowledge with real-world issues (Johnston, 2021).

The other policy is the development of partnerships with educational institutions, whereby the organization will develop partnerships with learning institutions (Amey & Eddy, 2023), enabling them to develop mutual goals, such as learning outcomes and assessment criteria, to ensure the integration of the academic and practical aspects of the student's work experience, in line with organizational objectives and academic development (O'Dwyer et al., 2023).

Finally, the organization will develop a mentorship policy whereby each CWIE student will be linked with a mentor who will be in charge of guiding them throughout their work experience period. This is because mentorship is crucial in ensuring that each student reaches their learning objectives, in line with their professional and academic development, as noted by Johnston (2021) and Suthamanon (2023).

In line with Billett (2020), the organization will develop a learning plan for each student, whereby the plan will include details regarding the tasks, objectives, and outcomes, in order to ensure that each student's academic objectives are met in their work experience setting. Furthermore, feedback mechanisms will be developed in order to monitor each student's progress throughout their work experience period, whereby formal feedback will be provided to each student at the midpoint and conclusion of their work experience period.

3. Operational plans for CWIE provision

In order to operationalize the CWIE policies, the organizations/industries will develop a comprehensive plan outlining the design, implementation, and evaluation of the CWIE placements (Lee, 2018). First and foremost, the organizations/industries will develop formal agreements with the educational institutions in order to ensure alignment between the students' work placements and the curriculum (Dean & Sykes, 2021).

Secondly, the organizations/industries will develop a special training and orientation program for the CWIE students (Jiranantanagorn, 2023). The students will be introduced to the organizational policies and culture in order to ensure a smooth transition and adaptation into the workplace. This will also help the students understand the relationship between the work placements and the curriculum (Ibrahim et al., 2022).

Furthermore, the mentorship program will be a vital part of the operational plan. A mentor will be assigned to each CWIE student to provide guidance and support in the workplace (Johnston, 2021). The mentor will assist the students in understanding the roles and applying the theoretical knowledge in the real world (Jaroensombut et al., 2023).

Furthermore, the students will be provided with individualized workplace learning plans in order to ensure the acquisition of relevant skills and knowledge (Baerheim & Raaheim, 2020; Fake & Dabbagh, 2020). The plans will be developed in collaboration with the academic supervisors and the workplace mentors.

Finally, in order to ensure the effectiveness and efficiency of the operational plan, the organizations/industries will develop a continuous evaluation and feedback mechanism in line with Seijts et al. (2020). Formal evaluations will be conducted at the midpoint and the end of the placements in order to assess the students' progress and determine whether they have attained the required learning outcomes. The evaluations will be based on the students' self-

assessment and the mentor's feedback to provide a comprehensive evaluation of the students' experience.

4. Procedures for implementing CWIE policies and plans

It is vital for the effective implementation of the policies and operational plans set in the CWIE program to develop a set of procedures that will govern the transition (Khampirat & McRae, 2016; Lee, 2018). First and foremost, the Human Resources (HR) department will develop the policies for the CWIE program and ensure they are in line with both national and international standards. The policies will be disseminated throughout all relevant departments in the company. Furthermore, the personnel involved in the CWIE program will undergo training on the roles and responsibilities (Ferns & Arsenault, 2023).

In collaboration with the higher education sector, the HR department will develop a Memorandum of Understanding (MOU) between the company and the relevant educational institution. This MOU will outline the scope of the CWIE program (Smouse, 2018).

Furthermore, the mentor program will be implemented by recruiting mentors from the company's experienced workforce. The mentor program will be designed in such a manner that the mentor will be able to mentor the students in the CWIE program. The mentor will undergo relevant training to ensure they are effective in mentoring the students (Okolie et al., 2020).

According to Chillakuri (2020), once the students are selected for the CWIE program, they will undergo a thorough onboarding program. The students will be trained on the company/industry policies and the relevant company/industry culture. The HR department and the mentor program will then collaborate in the development of a personalized workplace learning plan for each student in the CWIE program.

Finally, the monitoring and evaluation aspects will be implemented throughout the CWIE program. Through this program, the students will be able to gain valuable insights through the feedback sessions. Furthermore, the mid-term and end-term evaluations will be conducted to ensure the students are able to achieve the set objectives in the program. The feedback will then be used to improve the CWIE program in the future.

Table 1. CWIE policies, operational plans, and implementation procedures

Section	Key component	Main focus	Core actions/strategies	Expected outcomes
CWIE Policies for the Workplace	Integration of Learning and Work	Align academic theory with workplace practice	Assign tasks related to students' study areas; link theoretical knowledge with real-world issues (Em & Phann, 2024; Johnston, 2021)	Achievement of intended learning outcomes through applied learning
	Partnerships with Educational Institutions	Strengthen collaboration between organizations and academia	Develop shared goals, learning outcomes, and assessment criteria (O'Dwyer et al., 2023)	Better alignment between academic and workplace learning

	Mentorship Policy	Provide structured student guidance.	Assign mentors; support professional and academic development (Johnston, 2021; Suthamanon, 2023)	Improved student learning and workplace adaptation
	Individual Learning Plans & Feedback Mechanisms	Monitor progress and ensure achievement of outcomes	Develop learning plans; provide midpoint and final feedback (Billett, 2020)	Continuous performance improvement and learning effectiveness
Operational Plans for CWIE Provision	Formal Institutional Agreements	Ensure alignment with the curriculum	Establish agreements between organizations and universities (Dean & Sykes, 2021)	Structured placement implementation
	Training & Orientation Programs	Facilitate workplace integration	Introduce organizational culture, policies, and expectations (Ibrahim et al., 2022; Jiranantanagorn, 2023)	Smooth transition and enhanced preparedness
	Mentorship Implementation	Provide ongoing workplace support.	Assign mentors; guide theory-to-practice application (Jaroensombut et al., 2023; Johnston, 2021)	Stronger professional competence
	Individualized Workplace Learning Plans	Enhance skills development	Develop plans jointly with mentors and supervisors (Baerheim & Raaheim, 2020; Fake & Dabbagh, 2020)	Acquisition of relevant competencies
	Evaluation & Feedback Systems	Ensure effectiveness and accountability.	Conduct midpoint and final evaluations; use self-assessment and mentor feedback (Seijts et al., 2020)	Continuous program improvement
Procedures for Implementing CWIE Policies and Plans	Policy Development & Dissemination	Ensure institutional alignment	HR develops policies aligned with standards; trains personnel (Ferns & Arsenault, 2023; Khampirat & McRae, 2016)	Consistent implementation across departments
	Memorandum of Understanding (MOU)	Formalize partnerships	HR collaborates with institutions to define scope (Smouse, 2018)	Clear roles and responsibilities
	Mentor Recruitment & Training	Strengthen mentoring effectiveness	Recruit experienced staff; provide mentoring training (Okolie et al., 2020)	High-quality supervision

Student Onboarding & Learning Plan Development	Support workplace readiness	Provide onboarding; develop personalized learning plans (Chillakuri, 2020)	Effective workplace engagement
Monitoring & Evaluation Procedures	Improve CWIE outcomes	Conduct regular feedback sessions, mid-term and final evaluations	Ongoing program enhancement

5. Conclusion

For the implementation of the Cooperative Work-Integrated Education (CWIE) in the medium-sized organization, it is imperative that there is a systematic approach that entails the integration of policies, operational plans, and standardized procedures. This can be achieved through the development of associations with educational institutions, the provision of mentorship, and the incorporation of assessment mechanisms that can provide the students with valuable work experiences that can be beneficial to the company and the industry as a whole. The integration of scholarly education and work can ensure that the students are prepared for the industry and the workforce, and the organization can reap the benefits of new talents and new ideas.

Acknowledgments

The author wishes to convey his profound appreciation to the reviewers and the editing team of CJESS for their evaluation and proofreading of the manuscript. This piece would not have emerged in academic circles without their assistance. Consequently, their contributions are seen as indispensable and beneficial to society at large, particularly within the academic community of research and publication.

Conflict of interest

No potential conflict of interest was reported by the author.

Funding

The author received no financial support for the study, authorship, and/or publication of this study.

Declaration of AI usage

The author used Grammarly to polish the language in some parts of the article. However, he declared that the content of the article is totally his and not generated by any means.

References

- Amey, M. J., & Eddy, P. L. (2023). *Creating strategic partnerships: A guide for educational institutions and their partners*. Taylor & Francis.
<https://doi.org/10.4324/9781003443827>
- Baerheim, A., & Raaheim, A. (2020). Pedagogical aspects of interprofessional workplace learning: A case study. *Journal of Interprofessional Care*, 34(1), 59–65.
<https://doi.org/10.1080/13561820.2019.1621805>
- Billett, S. (2020). *Learning in the workplace: Strategies for effective practice*. Routledge.
<https://doi.org/10.4324/9781003116318>

- Chillakuri, B. (2020). Understanding Generation Z expectations for effective onboarding. *Journal of Organizational Change Management*, 33(7), 1277–1296. <https://doi.org/10.1108/JOCM-02-2020-0058>
- Dean, B. A., & Sykes, C. (2021). How students learn on placement: Transitioning placement practices in work-integrated learning. *Vocations and Learning*, 14(1), 147–164. <https://doi.org/10.1007/s12186-020-09257-x>
- Em, S., & Khampirat, B. (2025a). Cooperative education for sustainability: AI in learning opportunities, challenges, and future directions. In M. U. Tariq & R. P. Sergio (Eds.), *Convergence of AI, education, and business for sustainability* (pp. 75–92). IGI Global Scientific Publishing. <https://doi.org/10.4018/979-8-3373-1917-9.ch004>
- Em, S., & Khampirat, B. (2025b). Facilitating scholarly pursuits in higher education: Cambodia's endeavors toward research advancement. In A. A. Mdikana (Ed.), *Enhancing research output in higher education: Research proposals, profiles, and publishing* (pp. 39–66). IGI Global Scientific Publishing. <https://doi.org/10.4018/979-8-3373-0806-7.ch002>
- Em, S., & Khampirat, B. (2026). Cooperative education: A mini review of benefits and challenges for developing countries. *Frontiers in Education*, 11, Article 1794804. <https://doi.org/10.3389/feduc.2026.1794804>
- Em, S., & Phann, S. (2024). Book review: Cooperative and work-integrated education: History, present, and future issues in Asia. *Cambodian Journal of Educational and Social Sciences (CJESS)*, 1(1), 104–110. <https://doi.org/10.69496/cjess.v1i1.17>
- Fake, H., & Dabbagh, N. (2020). Personalized learning within online workforce learning environments: Exploring implementations, obstacles, opportunities, and perspectives of workforce leaders. *Technology, Knowledge and Learning*, 25(4), 789–809. <https://doi.org/10.1007/s10758-020-09441-x>
- Ferns, S. J., & Arsenault, C. (2023). Accreditation and quality in work-integrated learning: An international comparison. In K. E. Zegwaard & T. J. Pretti (Eds.), *The Routledge international handbook of work-integrated learning* (3rd ed., pp. 361–380). Routledge. <https://doi.org/10.4324/9781003156420>
- Ibrahim, H., Yusof, R., & Ibrahim, U. (2022). The role of employee onboarding training program in mitigating deviant workplace behavior: Job satisfaction as a mediator. *Global Business and Management Research: An International Journal*, 11(3), 983–1007. <https://www.gbmrjournal.com/pdf/v14n3s/V14N3s-68.pdf>
- Jaroensombut, L., Chuaboon, W., Sakolnakorn, T. P. N., Luengalongkot, P., Auiwong, K., Boonkawin, S., Yekpiewpong, S., Dhammasaccakarn, W., Saiyasopon, S., Pakittawichit, T., & Chaiyapong, A. (2023). The management of cooperative and work-integrated education for academic institutions of higher education in Thailand. *Asian Journal of Education and Training*, 9(4), 136–141. <https://doi.org/10.20448/edu.v9i4.5220>
- Jiranantanagorn, P. (2023). Enhancing career readiness: An online platform for competency assessment and workplace selection in cooperative and work-integrated education for Thai university students. *2023 IEEE Asia-Pacific Conference on Computer Science and Data Engineering (CSDE)*, 1–6. <https://doi.org/10.1109/CSDE59766.2023.10487690>
- Johnston, N. (2021). Global calls to action for work-integrated education: The WACE CWIE charter and applications of WIL for Gen Y and Z workers and students. In T. Gerhardt & P. J. Annon (Eds.), *Applications of work-integrated learning among Gen Z and Y students* (pp. 257–274). IGI Global. <https://doi.org/10.4018/978-1-7998-6440-0.ch012>
- Khampirat, B., & McRae, N. (2016). Developing a global standards framework and quality integrated models for cooperative and work-integrated education programs. *Asia-*

- Pacific Journal of Cooperative Education*, 17(4), 349–362.
<https://eric.ed.gov/?id=EJ1131541>
- Lee, K. (2018). The history and development of CWIE in Singapore with a Nanyang Technological University case study. In Y. Tanaka & K. Zegwaard (Eds.), *Cooperative and work-integrated education in Asia* (pp. 153–175). Routledge.
<https://doi.org/10.4324/9781315402024>
- O'Dwyer, M., Filieri, R., & O'Malley, L. (2023). Establishing successful university–industry collaborations: Barriers and enablers deconstructed. *The Journal of Technology Transfer*, 48(3), 900–931. <https://doi.org/10.1007/s10961-022-09932-2>
- Okolie, U. C., Nwajiuba, C. A., Binuomote, M. O., Ehiobuche, C., Igu, N. C. N., & Ajoke, O. S. (2020). Career training with mentoring programs in higher education: Facilitating career development and employability of graduates. *Education + Training*, 62(3), 214–234. <https://doi.org/10.1108/ET-04-2019-0071>
- Seijts, G., Espinoza, J. A., & Carswell, J. (2020). Utility analysis of character assessment in employee placement. *Leadership & Organization Development Journal*, 41(5), 703–720. <https://doi.org/10.1108/LODJ-07-2019-0314>
- Smouse, M. R. (2018). *Experiences of managers supervising work-integrated learning students in selected financial services organizations in the Western Cape, South Africa* [Master's thesis, Cape Peninsula University of Technology].
- Suthamanon, L. (2023). Educational administration for work-based education at Panyapiwat Institute of Management. *วารสารปัญญาภิวัฒน์*, 15(2), 116–129. <https://so05.tci-thaijo.org/index.php/pimjournal/article/view/264151>

A short review of Khmer education history: Education during the Chenla period

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Article info

Article history

Received: January 07, 2026

Revised: March 30, 2026

Accepted: April 20, 2026

Keywords

Angkor empire

Cambodian education history

Chenla period

Religious education

Sanskrit literacy

Article type

Mini review

Abstract

This paper focuses on the education system in the Chenla Kingdom (approximately years 550-802 AD), an essential period in the development of Khmer culture from the Funan Kingdom to the Angkor Era. This paper considers educational literature, history, Khmer inscriptions, and the Chinese chronicles to study educational institutions, curriculum, accessibility, methods of instruction, and the sociocultural functions of education. From the results of the historical documents, it is clear that the education process was mainly conducted at religious institutions such as temples, shrines, hermitages, and Disāpāmokkha schools. Education was mainly accessible to the members of the ruling elite, such as the royal family, nobles, high officials, and religious leaders. The curriculum was deeply influenced by the Indian civilization and mainly consisted of religious studies, reading and writing Sanskrit, philosophy, ethics, mathematics, astronomy, and administration. Instruction was mainly done through apprenticeship and oral instruction. Education was very crucial in preserving cultural tradition and governance, promoting literacy, and laying the intellectual foundation of the Angkor Era.

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1. Introduction

The Chenla period (550–802 AD) is one of the significant stages in the historical development of the civilization and education of Cambodia. Being located between the fall of the Funan Kingdom and the emergence of the Angkor Empire, the Chenla period became a transitional period when politics, religion, literacy, and knowledge transfer systems were more systematized. Although there are no direct references to schools, the analysis of sources, such as Khmer inscriptions, Chinese historical chronicles, archaeology, and the history of education, suggests that education was an integral part of the process of preservation of religious knowledge, literacy, administrative skills, and culture (Em, 2025a). The evolution of education in the Chenla period facilitated the spread of knowledge and skills and was an essential intellectual foundation for further progress of the Angkor Empire (Chin et al., 2023; Em et al., 2023; Em et al., 2025; Huot, 2025).

It is essential to consider the development of education in Chenla in light of the larger process of the historical development of civilization in Cambodia. Before the emergence of the state,

prehistoric communities in Cambodia were imparting knowledge through observation, imitation, oral tradition, and experience. Through this informal process of knowledge transfer, the communities gained knowledge on hunting, farming, tool-making, building settlements, and organizing themselves socially. As the political and religious institutions underwent developments during the periods of Funan and Chenla, knowledge transfer became increasingly more structured and institutionalized. As a result, Chenla not only received its traditions of education from prior civilizations but also developed its own systems of education (Em, 2025b; Em et al., 2023).

2. Educational institutions

The major means of learning at the time of Chenla were the religious institutions. Temples, sanctuaries, monastic cells, and religious schools were the main places of learning and intellectual activity. According to Chin et al. (2023), the Disāpāmokkha schools, which existed during the Funan era, were still functioning during the Chenla period and played a crucial role in knowledge dissemination and preservation. The curriculum of such institutions comprised religious teachings, literacy, ethics, and culture (Em, 2023).

The information provided by the inscriptions in the Khmer language states that temples could also be used for educational purposes. There is a large number of inscriptions about donations to the religious institutions, the founding of sanctuaries, work of Brahmins and scholars, who were in charge of preserving sacred texts and performing religious rituals (Coedès, 1968; Jacques, 1979). The presence of religious professionals in the temples indicates that they were also the centers of education.

3. Access to education

Education in Chenla was restricted mainly to those of the ruling classes, which comprised the royal families, aristocrats, senior government officials, and priests. Education in this society was directly linked with the political, religious, and administrative leadership. As a result, learning was available mostly for those persons who could occupy important posts in the kingdom. Indian scholars, Brahmins, and teachers were instrumental in the teaching of the ruling classes and political elites (Chin et al., 2023; Em et al., 2023).

However, some evidence indicates that there could have been some form of rudimentary literacy and numeracy education available for common men. The nature and extent of such education are not clear, but knowledge of some basics of daily life, commerce, and administration could be transmitted through non-elite members (Chin et al., 2023). However, access to education was highly uneven and based on social hierarchy.

4. Curriculum and areas of study

During the Chenla period, the educational curriculum had a significant influence from Indian civilization, with Hinduism and Buddhism. The education was mostly religious and philosophical. The students learned holy texts, ethics, rituals, religious philosophies, doctrines, and other aspects associated with both religions. Religion was taught not just as a part of spirituality but also as an affirmation of the rules and morals of governance (Chin et al., 2023; Coedès, 1968; Vickery, 1998).

The Sanskrit language played a pivotal role in the educational system. It was used as the language of religion, scholarship, and administration at courts. Many Sanskrit inscriptions

found in former Chenla territories show how much literacy and scholarship were valued among the religious and political elites. Knowledge of Sanskrit helped participants in religious ceremonies, royal administration, and scholarly work. However, the Old Khmer language became widely used in inscriptions and in official documents and thus contributed to the emergence of Khmer culture (Coedès, 1968; Jacques & Lafond, 2007).

Apart from the studies in religion and language, mathematics and astronomy were among other key areas of education. Students learned math concepts that related to the measurement of land, trade, taxes, building, and administration. The study of astronomy was especially important in relation to agriculture since it helped determine the seasons and plant/harvest at the right time. This was an indication of the practical nature of learning in education during the Chenla period (Chin et al., 2023; Em et al., 2023).

5. Teachers and learners

Teachers in the Chenla era comprised Brahmins, monks, and religious scholars. The individuals had specific expertise regarding the texts, rituals, philosophies, and morality, which they transferred from one generation to another. Their functions went beyond that of teaching the religion to include giving advice to the ruling class, conserving culture, and promoting literacy.

The education system at the time was mainly confined to the people of royal families, the aristocratic class, civil servants, and the religious class. It was considered vital as a means of educating future rulers and administrators who would be able to manage the state well (Em et al., 2025). The general populace was taught by means of family traditions, community involvement, and occupational training through activities such as farming, business, craftsmanship, and other common practices (Higham, 2014; Vickery, 1998).

6. Religious influences on education

Religion played an essential role in the education system during the time of the Chenla civilization. In particular, the Hindu religion, especially Shaivism, had a significant impact on the cultural, educational, and political spheres. Therefore, all the processes associated with education were aimed at studying Hindu scriptures, religious philosophy, rituals, and ethics (Coedès, 1968).

Although the Hindu religion was widespread, Buddhism was also an important factor in the development of education in Cambodia. Based on archaeological findings and historical documents, one can say that Buddhist communities existed throughout the kingdom and played a considerable role in the preservation and spread of religious knowledge. Thus, the coexistence of Hindu and Buddhist religions increased the intellectual diversity of the country and promoted the development of different philosophies and ethical views (Higham, 2014; Jacques & Lafond, 2007).

The connection between education, religion, and government was an important characteristic of early Cambodian society. Not only did religious communities preserve holy books, but they also reinforced political power, social hierarchy, and culture. Consequently, the educational process combined spiritual development and state management (Huot, 2025).

7. Historical evidence from Chinese chronicles

Further information on the intellectual and cultural progress of Chenla can also be gleaned from the Chinese histories. As noted by Wei (1973) and Ouyang and Song (1975), both the *Sui Shu* (*Book of Sui*) and *Xin Tang Shu* (*New Book of Tang*) portray Chenla as a civilized state that had religious beliefs, diplomacy, and administrative processes. Although there is no mention of educational institutions such as schools, there are references to priests, learned members of the aristocracy, and administrators in these histories, which indicates the existence of some form of literacy in Chenla (Ouyang & Song, 1975; Wei, 1973).

These Chinese sources also note the Indian civilization's impact on the religious and cultural life of Chenla. This supports the idea of educated religious and political elites in Chenla, as inferred from the inscriptions and archaeological data available (Vickery, 1998).

8. Teaching methods

The teaching methods employed in the Chenla era often involved the use of an apprenticeship style. Through this teaching style, learners were taught individually through the guidance of Brahmins, monks, religious scholars, and experienced teachers. This method of teaching allowed the transfer of special knowledge as well as the acquisition of both theoretical and practical skills that would be useful for learners in their future careers within society (Chin et al., 2023; Em et al., 2023).

Education involved a lot of oral training as well as memorization. Since there was very little manuscript material available, learners depended on their hearing, memory, participation in religious activities, and observation of practical demonstrations. This mode of teaching was common in the educational system in South and Southeast Asia at a time when written education materials were not widespread (Coedès, 1968).

During the Chenla period, the process of assessment was informal and depended on learners' proficiency in religious knowledge, reading and writing abilities, morality, and practical skills. Unlike modern examinations, which involve the use of tests, teachers assessed their students using reciting techniques, understanding of religious texts, participation in religious ceremonies, and the ability to apply the knowledge gained in everyday activities and in management. Academic success was associated with the acquisition of more responsibilities in religious centers, royal courts, or even local communities. Such an approach to assessment, characterized by the connection of education, religion, and government, indicated that learning had both intellectual and social purposes (Chin et al., 2023; Coedès, 1968; Higham, 2014).

Figure 1. Temple courtyard of learning and devotion



Source: Author

9. Contributions to Cambodian civilization

It is evident that the education system during the Chenla period played a great role in the growth of Khmer civilization. With the encouragement of reading, religious studies, ethics, administration, and science, education systems made significant contributions to the improvement of the political structure and cultural continuity. The preservation and transfer of knowledge during this period played a major role in the creation of a sophisticated state system and the intellectual foundation of the Angkor Empire.

Education has also helped the development of an educated group that would help the administration of the state, preserve the religion, maintain the cultural traditions, and ensure economic and political stability. Therefore, the great success of the Angkorian civilization in terms of administration, architecture, literature, religion, and culture has been due to the traditions of education in the Chenla period (Chin et al., 2023; Em et al., 2023; Em et al., 2025).

10. Conclusion

Education in the Chenla era was an important milestone in the development of Cambodian educational history. Based on previous experience in knowledge transfer that was acquired by early civilizations and the Funan Kingdom, the Chenla era introduced more structured methods of education based on religion and the education of elite classes. The temples, sanctuaries, monasteries, and Disāpāmokkha were the main places where education took place; the Brahmins and the monks were the educators and keepers of knowledge.

The curriculum included religious education, study of the Sanskrit language, moral values, philosophy, mathematics, astronomy, and administration. Inscriptions, foundation stones of the temples, educational history, and Chinese historical sources show that there existed an educated religious and political elite whose task was to preserve and pass knowledge down. Despite the fact that formal education was mainly accessible to the privileged groups, education had a key role in the preservation of culture and administration and the formation of the future Angkor Empire.

The process of knowledge and skill transfer was not the only role that education played in the Chenla Kingdom. Due to the interweaving of religion, politics, and learning, education facilitated the maintenance of the existing hierarchy and culture of the region. The foundations laid during this period were reflected in the later educational advancements in Cambodia and became one of the reasons for the establishment of the complex education and administration system in the Angkor Empire.

Acknowledgments

The author wishes to convey his profound appreciation to the reviewers and the editing team of CJESS for their evaluation and proofreading of the manuscript. This piece would not have emerged in academic circles without their assistance. Consequently, their contributions are seen as indispensable and beneficial to society at large, particularly within the academic community of research and publication.

Conflict of interest

No potential conflict of interest was reported by the author.

Funding

The author received no financial support for the study, authorship, and/or publication of this study.

Declaration of AI usage

The author used Grammarly to polish the language in some parts of the article. However, he declared that the content of the article is totally his and not generated by any means.

References

- Chin, P., Em, S., Phann, S., & Seng, S. (2023). Education in Cambodia before Angkor Empire: Prehistory, Nokor Phnom, and Chenla periods. *Journal of General Education and Humanities*, 2(4), 323–336. <https://doi.org/10.58421/gehu.v2i4.153>
- Coedès, G. (1968). *The Indianized states of Southeast Asia* (S. B. Cowing, Trans.). University of Hawai'i Press. (Original work published 1964).
- Em, S. (2023). *Encouraging English language study in Cambodian higher education institutions: A case study of Takeo province (2012-2022)* [Doctoral dissertation, Khemarak University]. CJESS Online Library. <https://ejournal.educationfields.com/index.php/CJESSOL/article/view/53>
- Em, S. (2025a). *Effectiveness of school directors' transformational leadership on teachers' self-efficacy and job performance in Cambodia* [Doctoral dissertation, The University of Cambodia]. CJESS Online Library. <https://ejournal.educationfields.com/index.php/CJESSOL/article/view/63>

- Em, S. (2025b, March 09). *From stone tools to settlements: The dawn of Cambodian civilization*. English Academic Essay.
<https://sereyrathlearning.wordpress.com/2025/03/09/from-stone-tools-to-settlements-the-dawn-of-cambodian-civilization/>
- Em, S., Khan, S., & Nun, N. (2023). Education system in Cambodia: A brief review from the prehistoric period to the present, and an education strategic plan for the future. *FIRE: Forum for International Research in Education*, 9(3), 1–25.
<https://doi.org/10.32865/fire202393312>
- Em, S., Mok, M., Chin, P., Khan, S., Serey, M., Pen, D., & Sam, R. (2025). History of education in Cambodia: A review of literature from past to present. *Paramita: Historical Studies Journal*, 35(1), 32–47.
- Higham, C. (2014). *Early mainland Southeast Asia: From first humans to Angkor*. River Books.
- Huot, S. (2025). Temples to policy plans: Tracing the political trajectory of education and governance in Cambodia, from antiquity to contemporary reforms. *Journal of Political Science and International Relations*, 8(3), 122–132.
<https://doi.org/10.11648/j.jpsir.20250803.12>
- Jacques, C. (1979). *Études d'épigraphie cambodgienne*. École française d'Extrême-Orient.
- Jacques, C., & Lafond, P. (2007). *The Khmer Empire: Cities and sanctuaries from the 5th to the 13th century*. River Books.
- Ouyang, X., & Song, Q. (1975). *Xin Tang Shu [New Book of Tang]*. Zhonghua Shuju. (Original work published ca. 1060 CE).
- Vickery, M. (1998). *Society, economics, and politics in pre-Angkor Cambodia: The 7th–8th centuries*. Center for East Asian Cultural Studies.
- Wei, Z. (1973). *Sui Shu [Book of Sui]*. Zhonghua Shuju. (Original work published ca. 636 CE).

Appendices

Appendix 1. Foreign Experts of CJESS

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2.	Robby Yuli Endra	PhD	Indonesia
3.	Aung Myo Hein	MA	Myanmar
4.	Ganda Febri Kurniawan	MA	Indonesia
5.	Tharatep Sanlee	MA	Thailand
6.	Ei Thandar Win	MA	Myanmar

Appendix 2. Core Editorial Members of CJESS

No.	Full Name	Role	Degree	Country
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2.	Dina Pen	Manager	PhD	Cambodia
3.	Buratin Khampirat	Editor	PhD	Thailand
4.	Saban Bon	Editor	PhD	Cambodia
5.	Mardy Serey	Editor	PhD	Cambodia
6.	Ganda Febri Kurniawan	Editor	MA	Indonesia
7.	Tharatep Sanlee	Associate Editor	MA	Thailand
8.	Ei Thandar Win	Associate Editor	MA	Myanmar
9.	Robby Yuli Endra	Technical Support	MA	Indonesia

Appendix 3. Current Guidelines for Authors and Reviewers

1. For authors

You must read and acknowledge that you've completed the requirements below before proceeding.

- The submission has not been previously published, nor is it before another journal for consideration (or an explanation has been provided in Comments to the Editor).
- The submission file is in Microsoft Word document file format.
- Where available, DOIs or URLs for the references have been provided.
- The text is single-spaced; uses a 12-point font; employs italics, rather than underlining (except with URL addresses); and all illustrations, figures, and tables are placed within the text at the appropriate points, rather than at the end.
- The text adheres to the stylistic and bibliographic requirements outlined in the Author's Guidelines.
- The manuscript must be written in English with no plagiarism and must have never been published before, or must not be currently being submitted for publication elsewhere.
- The manuscripts require a minimum of at least 1500 words for book reviews, 3000–4000 words for short articles, and 6000–8000 words for full-length articles, including everything.

- Manuscripts, except for book reviews, must include an English abstract of no more than 250 words, followed by five keywords.
- Use a reference management and formatting program like Mendeley, EndNote, or Zotero. The authors can also do citations and references manually, but they must ensure consistency between citations and references. The reference list needs to follow APA 7th style, and the citation needs to be in-text.
- Make sure to prepare your manuscript using the paper template and format provided by CJESS.

2. For reviewers

- **Contribution to editorial decisions**

Peer review assists editors in making editorial decisions and, through editorial communications with authors, may assist authors in improving their manuscripts. Peer review is an essential component of formal scholarly communication and lies at the heart of scientific endeavor. CJESS shares many views that all scholars who wish to contribute to the scientific process must do their fair share of reviewing.

- **Promptness**

Invited reviewers who feel unqualified to review the research reported in a manuscript or know that its prompt review will be impossible should immediately notify the editors and decline the invitation to review so that alternative reviewers can be contacted.

- **Confidentiality**

The Editor-in-Chief (who would only do so under exceptional and specific circumstances) must authorize the display or discussion of any manuscripts received for review as confidential documents. This is also true for invited reviewers who decline the review invitation.

- **Standards of objectivity**

To improve the manuscript, authors should conduct objective reviews and formulate observations clearly with supporting arguments. Personal criticism of the authors is inappropriate, and the reviewers may reject this.

- **Acknowledgment of sources**

Reviewers should locate pertinent published work that the authors have not yet cited. The relevant citation should accompany any statement, observation, derivation, or argument reported in previous publications. Reviewers should also notify the editors of any substantial similarity or overlap between the manuscript under consideration and any other manuscript (published or unpublished) of which they have personal knowledge.

- **Disclosure and conflicts of interest**

To contact alternative reviewers, any invited reviewers who have conflicts of interest due to competitive, collaborative, or other relationships or connections with any of the authors, companies, or institutions connected to the manuscript and the work described therein should immediately notify the editors, declare their conflicts of interest, and decline the invitation to review.

Reviewers cannot use unpublished material from a submitted manuscript in their research without the authors' express written consent. The reviewers must maintain the confidentiality of privileged information or ideas acquired through peer review and refrain from using them for personal gain. This is also true for invited reviewers who decline the review invitation.

Appendix 4. Peer Review Process



Figure 4.1 Peer Review Process

1. Submitting a manuscript

The corresponding or submitting author submits the manuscript to the journal through the Open Journal System (OJS). Occasionally, our journal may accept submissions by email.

2. Editorial office assessment

The journal checks the manuscript's composition and arrangement against the journal's author guidelines to make sure it includes the required sections and stylizations. The journal does not assess the manuscript's quality at this point.

3. The Editor-in-Chief's evaluation

The editor-in-chief ensures that the paper is appropriate for the journal, sufficiently original, and interesting. If not, the editor-in-chief may reject the paper without further review.

4. The Editor-in-Chief assigns an editor

Some journals have associate editors who handle peer review. At this stage, if they undergo peer review, they will receive an assignment.

5. Invitation to reviewers

The handling editor sends invitations to individuals he or she believes would be appropriate reviewers. After receiving responses, the handling editor issues additional invitations as

needed, aiming to secure the required number of acceptances, typically two, although journal-specific variations may exist.

6. Respond to invitations

Potential reviewers consider the invitation against their expertise, conflicts of interest, and availability. They then accept or decline. If possible, they might also suggest alternative reviewers when declining.

7. A review-initiative process

The reviewer sets aside time to read the paper several times. The reviewer uses the first read to form an initial impression of the work. If the reviewer finds major problems at this stage, they may feel comfortable rejecting the manuscript without further work. Otherwise, they will read the paper several more times, taking notes to build a detailed point-by-point review. The journal then receives the review, either with a recommendation to accept or reject it or else with a revision request (usually flagged as either major or minor) before reconsideration.

8. The journal's review assessment

Before making an overall decision, the handling editor considers all of the returned reviews. If the reviews differ widely, the editor may invite another reviewer to get an additional opinion before making a decision.

9. The decision's communication

The editor sends a decision email to the author, including any relevant reviewer comments. Whether the comments are anonymous or not will depend on the type of peer review that the journal operates.

10. Next steps

After acceptance, the paper goes into production. If the handling editor rejects the article or sends it back for a major or minor revision, they should incorporate constructive comments from the reviewers to assist the author in improving the article. From here, the handling editor should email or write to the reviewers to inform them of their results. If the handling editor sends the paper back for revision, the reviewers should expect to receive a revised version, unless they have chosen not to participate further. However, if only minor changes were required, the handling editor could complete this follow-up review.

Appendix 5. All Editorial Team Members as of December 2024

Editorial	Total Count	Cambodian	Foreigner	Master	Doctoral
Advisory Board	06	04	02	03	03
Editor-in-Chief	01	01	n/a	n/a	01
Editors	09	07	02	05	04
Associate Editors	03	01	02	03	n/a
Technical Support	01	n/a	01	n/a	01
Reviewers	25	23	02	20	05

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Our editorial board also reaches out to external reviewers when we do not have experts specialized in the manuscripts submitted.

Appendix 6. Call for papers

The Cambodian Journal of Educational and Social Sciences (CJESS) welcomes original research articles, review articles, and book reviews. CJESS publishes two issues a year in June and December, and the authors are welcome to submit their articles year-round. However, they must notice that each article needs at least three months from submission to publication. Authors need to register and follow the instructions to submit articles to CJESS, or if they are not familiar with the open journal system (OJS), they may submit their papers directly to **cjessjournal555@gmail.com** along with the full name(s), affiliation(s), short bio(s), and email address(es).

However, as the world grows and everything changes rapidly, technology is one of the things that people need to learn, develop, and adjust to. Therefore, individuals should learn to utilize technology according to their specific needs, and authors should become proficient in OJS, given its widespread use by numerous journals and publishers worldwide.

For the article format, authors can go to our journal website and download the template. The original research articles should conform to the template, while review articles and book reviews should align with the template's title page and begin the subsequent sections accordingly.

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E-ISSN: 3007-2328

P-ISSN: 3007-4649

DOI: 10.69496/cjess

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,and Social Sciences (CJESS) | Takeo Province**

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