



RMUTK
www.rmuth.ac.th สภามหาวิทยาลัยราชภัฏมหาสารคาม

IJSSBR



ศูนย์บริการวิชาการและเทคโนโลยีสารสนเทศ

INTERNATIONAL JOURNAL OF **SOCIAL SCIENCES** **AND** **BUSINESS RESEARCH**



Volume 2, Issue 1
(January - April, 2026)



ISSN 3088-3717 (Online)
ISSN 3088-37xx (Print)

JOURNAL INFORMATION

International Journal of Social Sciences and Business Research (IJSSBR)

Volume 2, No. 1 (January – April 2026)

Journal Title	International Journal of Social Sciences and Business Research (IJSSBR)
Owner / Publisher	Research and Development Division, Rajamangala University of Technology Krungthep
ISSN	ISSN 3088-3717 (Online) ISSN 3088-37xx (Print)
Editor	Assistant Professor Supaphorn Akkapin, Ph.D., International College, Rajamangala University of Technology Krungthep
Language	English
Publication Frequency	3 issues per year (Issue 1: January–April; Issue 2: May–August; Issue 3: September–December)
Types of Articles	Research article, Academic article, Review article, Book review
Article Processing Charge	None
Website	https://so20.tci-thaijo.org/index.php/ijssbr
Contact	Rajamangala University of Technology Krungthep, Thung Maha Mek, Sathon, Bangkok 10120, Thailand. E-mail: supaphorn.a@mail.rmutk.ac.th

Aims and Scope

The journal aims to provide a platform for researchers, scientists and academicians to share knowledge and ideas in the form of high-quality articles, either original research or review, covering the main fields of anthropology, business, economics, education, environmental studies, geography, human resource management, linguistics, organisational studies, political science, psychology, social policy, social work, sociology and related fields.

Peer Review Process

The editorial board and at least three experts in the field peer-review each manuscript before it is accepted for publication. The names of reviewers and authors are kept secret from one another during the peer review process (double-blind review).

The views expressed in the articles are those of the authors and do not necessarily reflect those of the Editorial Board.

EDITORIAL TEAM

Editor

Assistant Professor Supaphorn Akkapin, Ph.D.

International College, Rajamangala University of Technology Krungthep, Bangkok, Thailand

E-mail: supaphorn.a@mail.rmutk.ac.th

Editorial Board Members

Knut Ingar Westeren, Ph.D.

Professor – Economics

Nord University, Faculty of Social Sciences, Levanger, Norway

Dave Marcouiller, Ph.D.

Professor – Resource Economics and Rural Development

Nelson Institute for Environmental Studies, University of Wisconsin–Madison, USA

Olof Andreas Stjernström, Ph.D.

Professor – Geography

Nord University, Faculty of Social Sciences, Levanger, Norway

Andreas P. Cornett, Ph.D.

Professor – Political Science

University of Southern Denmark, Faculty of Social Sciences, Sønderborg, Denmark

Steven Deller, Ph.D.

Professor – Economic Development

University of Wisconsin–Madison, Department of Agricultural and Applied Economics, USA

Peter V. Schaeffer, Ph.D.

Professor – Resource Economics and Management

West Virginia University, Davis College of Agriculture, Natural Resources & Design, USA

Alan Wilson, Ph.D.

Emeritus Professor – Marketing

University of Strathclyde, Business School, United Kingdom

Jefferson A. R. Staduto, Ph.D.

Associate Professor – Applied Economics

Universidade Estadual do Oeste do Paraná, Campus de Toledo, Paraná, Brazil

Nils Karl Sørensen, Ph.D.

Associate Professor – Econometrics and Data Science

University of Southern Denmark, Department of Economics, Sønderborg, Denmark

Barbara Pavlakovič, Ph.D.

Associate Professor – Tourism Science

University of Maribor, Faculty of Tourism, Brežice, Slovenia

Kemtong Sinwongsuwat, Ph.D.

Associate Professor – English Language and Linguistics

Prince of Songkla University, Thailand

Winit Pharcharuen, Ph.D.

Assistant Professor – Political Science

School of Administrative Studies, Maejo University, Chiang Mai, Thailand

Nikorn Mahawan, Ph.D.

Assistant Professor – Architecture and Environmental Design

Faculty of Architecture and Environmental Design, Maejo University, Chiang Mai, Thailand

EDITORIAL TEAM (continued)

Wanpen Charoentrakulpeeti, Ph.D.

Assistant Professor – Social Sciences

Faculty of Social Sciences, Chiang Mai University, Chiang Mai, Thailand

Kannapat Kankaew, Ph.D.

Assistant Professor – Management

College of Hospitality Industry Management, Suan Sunandha Rajabhat University, Thailand

Chayanan Kerdpitak, Ph.D.

Assistant Professor – Marketing

Suan Sunandha Rajabhat University, Thailand

Oradol Kaewprasert, Ph.D.

Assistant Professor – Mass Communication

University of the Thai Chamber of Commerce, Thailand

CONTENTS

Editorial

- Modern Education and Social Dynamics: Internationalisation, Technology, and Community Development** 1
Supaphorn Akkapin (Editor)
-

Research Articles

- Anxiety and Mental Health in English Learning among Chinese Students at a Thai Public University** 12
Adili Tuersunniyaze, Yue Zhao, Wei Zhang, Tubagus Achmad Darodjat and Alan Robert White
-

- Navigating Language, Food, and Transportation: The Cross-Cultural Experiences of Chinese Students in Thailand** 20
Zhang Yu, Wei Wang, Alan Robert White and Tubagus Achmad Darodjat
-

- Motivations for Chinese Students Enrolling in International Programs in Thailand** 28
Li Yixuan, Shuhao Wang, Liqing Ren, Alan White and Tubagus Achmad Darodjat
-

- Student On-Campus Coffee Drinking Habits Among Post-Graduate Students in Thailand** 36
Zhang Jichang, Tubagus Achmad Darodjat and Alan White
-

- Risk-Aware but Unprepared: Business Students, AI-Assisted Writing, and Lessons from a Professional Verification Failure** 47
Li Jiashuo and Alan Robert White
-

- Quantifying the Impact of Digital Transformation on Enterprise Development: Evidence from Chinese Listed Companies** 73
Li Jiashuo, Wang Chuanfei, Xu Jinlong, Ma Zihan, Lei Jiaxin and Alan Robert White
-

- International Service Learning to Promote Quality Education and Sustainable Communities in Thailand** 92
Anggraini Ratih Purwandari, Ahmad Fadli, Husnul Holifah and Tubagus Achmad Darodjat
-

Modern Education and Social Dynamics: Internationalisation, Technology, and Community Development

Editorial — Volume 2, Issue 1 (2026)

Supaphorn Akkapin, Editor

International College, Rajamangala University of Technology Krungthep, Bangkok,
Thailand

E-mail address: supaphorn.a@mail.rmutk.ac.th

Published: April 30, 2026

Abstract

Thailand has become one of Southeast Asia's more consequential meeting points between global higher education and local social change. This editorial introduces Volume 2, Issue 1 of the International Journal of Social Sciences and Business Research, and reads its contributions through a single organising idea: that contemporary education and social dynamics are best understood together rather than apart. Three pillars structure the argument — the internationalisation of higher education and the cross-cultural experience it produces, the integration of digital and artificial-intelligence technologies into teaching and administration, and the evolving social and consumer dynamics of an ageing, digitally connected society. Each pillar is represented by empirical work in this issue, and each converges on Thailand as an educational hub. Taken together, the studies suggest that internationalisation, technology, and community development are not parallel trends but mutually conditioning forces, and that the most pressing questions for educators and policymakers concern the connections between them rather than any one in isolation.

Keywords: internationalization, artificial intelligence, learning management systems, cross-cultural adaptation, ageing society, Thailand

Introduction: Education and Society in a Regional Hub

Few countries illustrate the entanglement of education and social change as vividly as Thailand. Once chiefly a sender and transit point for students moving within the region, it has become a destination in its own right, drawing scholars — Chinese students most visibly — into its universities at the very moment its own society is undergoing a demographic transition of unusual speed. This issue of the International Journal of Social Sciences and Business Research gathers work that sits at exactly this intersection, and the editorial that introduces it takes a deliberate position: the papers are more illuminating in conversation than in isolation.

The organising idea is set out in Figure 1. Three pillars — internationalisation and cultural integration, technological and educational innovation, and evolving local social dynamics — are treated not as separate research silos but as forces that converge on a single site, Thailand as an educational hub. Internationalisation defines who now populates Thai classrooms and administrative offices; technology reshapes how those classrooms and offices function; and the surrounding society, ageing and heavily mediated, alters both the community into which graduates move and the market that universities serve. The convergence is the point. A university recruiting Chinese postgraduates, deploying an artificial-intelligence layer in its learning management system, and operating in a city whose over-sixties are its fastest-growing cohort is managing all three pressures at once, and it experiences them as a single problem of adaptation rather than as three tidy research questions.

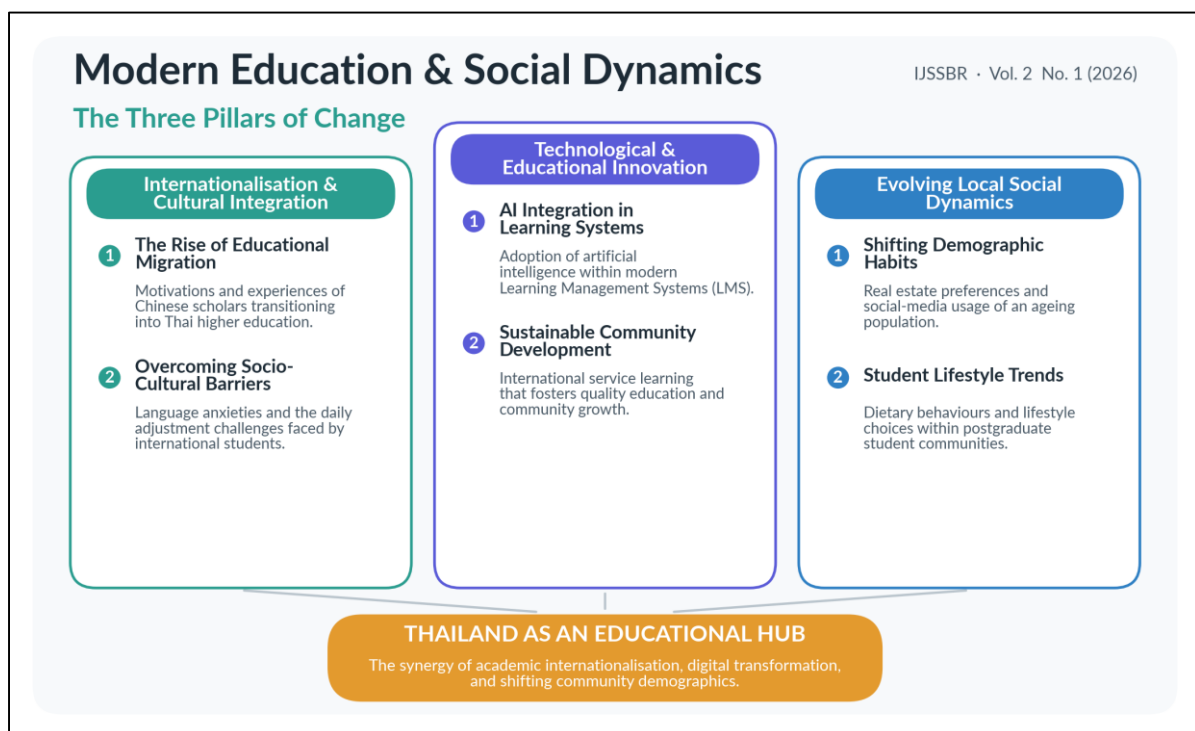


Figure 1. Modern education and social dynamics: the three pillars of change converging on Thailand as an educational hub.

Internationalisation, in Knight's (2004) still-serviceable definition, is the process of integrating an international, intercultural, or global dimension into the purpose, functions, and delivery of higher education. In the Thai case the process carries a demographic driver that celebratory accounts rarely acknowledge: a shrinking domestic cohort. As the birth rate falls and the population ages, universities face declining home enrolments and turn outward, and the regional supply of mobile Chinese students meets that need (Siricharoen, 2023). What looks

like an educational strategy is therefore also a response to social change — the first of many places in this issue where the classroom and the wider society prove impossible to separate.

This editorial proceeds through the three pillars in turn, drawing on the studies collected here and on the wider scholarship each engages, before returning to the hub that binds them. The aim is not to summarise every paper but to explain why they belong in the same volume.

This journal's remit spans the social sciences and business research, and the present issue is deliberately interdisciplinary in a way that remit invites. Educational migration is at once a sociological phenomenon and a market; the adoption of learning technologies is a question of pedagogy and of institutional management; an ageing society is a social fact with sizeable commercial consequences. Reading the collection across these registers, rather than confining each paper to a single discipline, is not an editorial indulgence but a fairer reflection of how the phenomena actually behave.

The First Pillar: Internationalisation and Cultural Integration

The first pillar concerns who moves, why they move, and at what personal cost the move is made. Educational migration into Thailand is now substantial enough to reshape institutional strategy, but its human texture is easily lost in enrolment statistics. Two of this issue's contributions insist on that texture, and they are best read against the motivations that bring students in the first place.

The rise of educational migration

Chinese students constitute the largest single group of international enrolments in Thai higher education, and their motivations are more varied than the familiar narrative of overflow from an intensely competitive home system. Siricharoen (2023), studying Chinese undergraduates and doctoral candidates in Bangkok, found their choices shaped by affordability, cultural and linguistic proximity, and the specific opportunity to acquire language and teaching experience, rather than by academic pressure alone. A contribution to the present issue, examining the motivations of Chinese students enrolling in international programmes in Thailand, extends this picture and complicates any single-factor account. Motivation matters here for more than description: what students expect on arrival conditions how they interpret the difficulties that follow, so the push and pull that bring a scholar to Bangkok are also the frame through which early disappointment or resilience is understood.

The scale of this movement lends the human stories their weight. Chinese enrolments in Thai higher education numbered in the tens of thousands by the early 2020s and have continued to climb, concentrated in private institutions for which international recruitment has become a matter of financial survival rather than prestige (Siricharoen, 2023). Thailand's ambition to position itself as a regional education hub thus rests on a foundation that is partly demographic accident and partly deliberate strategy, and the distinction matters for policy. A hub built chiefly to offset falling domestic demand will be tempted to treat international students as a revenue stream; a hub built as genuine internationalisation, in Knight's (2004) sense, must instead integrate an intercultural dimension into its purpose and its delivery. That difference is felt most acutely by the students themselves, and it is their experience that the following contributions document.

Overcoming socio-cultural barriers

Arrival is where motivation meets friction. Language is the most immediate site of that friction, and it is rarely a purely linguistic matter. Horwitz, Horwitz, and Cope (1986) established foreign-language anxiety as a distinct construct — a complex of self-perception, belief, and feeling specific to the language classroom rather than a simple deficit of proficiency — and their framing remains indispensable for understanding why capable students freeze in an unfamiliar tongue. A study in this issue takes up precisely this theme, examining anxiety and mental health in English-language learning among Chinese students at a Thai public university, and in doing so links a well-known pedagogical construct to the broader question of student wellbeing.

Beyond the classroom lies the slower work of sociocultural adjustment. Ward and Kennedy (1999) drew a durable distinction between psychological adaptation, which concerns emotional wellbeing, and sociocultural adaptation, which concerns the practical competence to manage daily life in a new setting; the two follow different trajectories and respond to different kinds of support. Berry's (1997) account of acculturation adds that adjustment is not a single scale from distress to comfort but a set of strategies — integration, assimilation, separation, marginalisation — that migrants adopt in negotiating heritage and host cultures. A further contribution to this issue, tracing the everyday negotiation of language, food, and transportation among Chinese students in Thailand, gives these abstractions their concrete form: adaptation is enacted in the market, on the bus, and at the dinner table, not merely felt. Read through Zhou, Jindal-Snape, Topping, and Todman's (2008) synthesis, which recasts culture shock as a learnable process spanning affect, behaviour, and cognition, the practical lesson for institutions

is clear. Sociocultural competence can be taught, and support that treats language anxiety and daily adjustment as related rather than separate problems is likely to do more than either a language centre or a counselling service acting alone.

It is worth dwelling on what these adjustment difficulties imply for institutional responsibility. When language anxiety shades into persistent distress, the matter ceases to be pedagogical and becomes one of duty of care. Ward and Kennedy's (1999) separation of psychological from sociocultural adaptation is useful precisely here: a student may achieve competent daily functioning while remaining emotionally unsettled, so that the outward markers of adjustment can mask genuine need. The contribution in this issue on anxiety and mental health among Chinese learners is therefore not a niche wellbeing study but a signal to any institution that recruits internationally. Support conceived only as language provision, or only as counselling, will miss the students who fall between the two, and the transnational setting — where help-seeking norms themselves differ across cultures — makes that gap wider still.

The Second Pillar: Technological and Educational Innovation

If internationalisation changes who is in the room, technology changes what the room can do. The second pillar covers both the digital instruments of modern education and the pedagogies that put learning to social use, and this issue speaks to each.

AI integration in learning systems

Artificial intelligence embedded in learning management systems has moved quickly from novelty to infrastructure. The evidence for its benefits is now reasonably settled: in a systematic review of 148 studies, Msambwa, Wen, and Daniel (2025) found that AI tools strengthen personalisation, assessment, and engagement, while cautioning that these gains depend on preserving a balance between automated and human interaction. What sustains adoption, however, is less the technology than the trust placed in it. Baig and Yadegaridehkordi (2025) identified ethical considerations and data security as decisive for continued use of generative AI among academic staff, and Mexhuani (2025), combining acceptance and diffusion theories, showed that enthusiasm routinely coexists with faculty resistance and privacy concern. Awashreh (2025) sharpens the warning, treating algorithmic bias and over-reliance as governance problems rather than technical footnotes.

A study in this issue turns this literature towards a group it usually overlooks. Where most research examines students or faculty, the contribution on perceptions of AI-enhanced learning management systems in smart higher education administration examines administrators — the actors who set policy and allocate resources. Its finding is instructive: strong endorsement of the enabling conditions for adoption, from policy and training to ethical safeguards, sits alongside markedly weaker confidence that institutions are actually ready to implement them. That readiness gap is the administrative counterpart to the adjustment gap international students describe. In both, aspiration outruns preparedness, and in both the remedy lies less in exhortation than in patient institutional work.

The promise of AI in education is shadowed by a familiar risk. Every efficiency it offers can widen a gap as readily as close one, since the institutions and individuals best placed to exploit a new tool are rarely those most in need of it. Awashreh (2025) frames this as a question of equity and accountability rather than performance, and Mexhuani (2025) shows that the barriers to adoption are as much social — faculty confidence, institutional culture, trust in data handling — as technical. In a hub serving a linguistically and culturally mixed student body, these cautions acquire additional force: a system trained on one population's language and behaviour may serve another poorly, quietly reproducing disadvantage under the appearance of neutral automation. The administrators' readiness gap, seen in this light, reflects a reasonable intuition that adopting the technology is the easy part and governing it fairly is the hard one.

Sustainable community development

Technology is only one face of educational innovation; pedagogy is the other, and the most socially ambitious pedagogies push learning outward into the community. International service learning, which pairs academic study with structured community engagement across borders, has become a favoured vehicle for this ambition. Rodríguez-Zurita, Jaya-Montalvo, Moreira-Arboleda, Raya-Diez, and Carrión-Mero (2025), reviewing a large body of work, trace a decisive shift from curriculum development towards education explicitly aligned with the Sustainable Development Goals, and identify experiential, community-engaged approaches as effective means of building sustainability competence. In a hub such as Thailand the appeal is twofold. Service learning advances the fourth Sustainable Development Goal of inclusive, quality education, and it does integrative work besides, placing international and domestic students in shared civic projects that convert the abstract virtue of internationalisation into concrete local benefit.

The Third Pillar: Evolving Local Social Dynamics

Universities do not sit apart from the society around them, and the third pillar attends to that society directly. Two demographic facts dominate it: Thailand is ageing rapidly, and it is intensely digitally connected. Both reshape consumption, community, and everyday life, and both bear on the institutions that educate the country's young.

Shifting demographic habits

Thailand crossed into 'aged society' status in the mid-2020s, with more than a fifth of its population over sixty, and the shift is already visible in housing and consumption. Boonpan and Boonyachut (2024), studying accommodation for Bangkok's self-reliant elderly, describe a market moving towards value-driven, active-ageing housing that supports independence rather than merely providing care — a reconfiguration of real-estate preference that has few precedents in the country's recent history. Older Thais are also, increasingly, online. Kusumota and colleagues (2022) found that social-media use among older adults can reduce loneliness and social isolation and sustain family contact, even as the evidence remains mixed and largely cross-sectional. Contributions to this issue on the real-estate preferences and social-media habits of an ageing population document this transformation in the Thai setting, and in doing so remind us that the digital fluency universities cultivate in the young is now spreading, unevenly, across the generations.

These shifts are not only social but commercial, and they fall squarely within this journal's business-research remit. An ageing population is the engine of what is increasingly called the silver economy — the expanding market in housing, health services, financial products, and consumer goods designed for older adults. The reorientation of real estate that Boonpan and Boonyachut (2024) describe is one visible edge of a much larger reallocation of demand, and the migration of older Thais onto social platforms opens fresh channels for reaching a cohort that business has historically underserved. For universities, the silver economy is also a curricular and research opportunity: the same demographic pressure that reshapes their enrolments generates demand for expertise in gerontology, healthcare management, and age-friendly design that their graduates are well placed to supply.

Student lifestyle trends

At the other end of the age distribution, the everyday choices of student communities offer a different window onto social change. Diet is a revealing case. Aboueldahab, Vanutelli, D'Addario, and Steca (2026), surveying more than fifteen hundred university students, found

food choice governed less by nutritional knowledge than by taste, convenience, cost, and context, with markedly lower consumption of healthier foods inside institutional canteens than outside them. A contribution to this issue on the lifestyle and dietary behaviours of postgraduate students brings this line of inquiry into the Thai context, where the pressures of graduate study meet a fast-changing food environment. What appears at first to be a narrow question of nutrition opens onto a broader one about how consumer culture, convenience, and identity shape the habits of educated young adults — the same young adults whose international peers, examined under the first pillar, are simultaneously renegotiating food and daily life as newcomers.

The dietary evidence, finally, should be read with both caution and seriousness. Much of it, like the work on older adults' digital lives, remains cross-sectional, so claims about cause must stay modest. Yet the finding that convenience, cost, and context outweigh knowledge in shaping what students eat (Aboueldahab et al., 2026) carries a clear institutional lesson: changing the food environment on campus is likely to achieve more than exhorting students to choose better. For a postgraduate population already managing the demands of advanced study, the design of everyday choice architecture — what is available, affordable, and close to hand — is a quiet but real determinant of wellbeing.

Convergence: Thailand as an Educational Hub

Set side by side, the three pillars reveal connections that none displays alone. The most striking is a recurring structural gap between aspiration and readiness. International students arrive motivated yet unprepared for the daily work of adjustment; administrators endorse AI adoption yet doubt their institutions can deliver it; ageing consumers embrace digital life yet the housing and services around them lag behind. In each case a genuine appetite for change runs ahead of the capacity to absorb it, and in each the productive response is the same — deliberate, staged support rather than either enthusiasm or resistance.

A second thread is pervasive digital mediation. The learning management system of the second pillar, the social-media platforms through which older Thais stay connected, and the online information environment in which students choose programmes and even meals are versions of one phenomenon. Digital tools now sit between people and the institutions that serve them, which means that questions of access, literacy, and trust cut across education, consumption, and community rather than belonging to any single domain.

Underlying both is demography. The ageing that reshapes Thailand's housing and consumer markets is the same force that thins domestic university enrolments and drives the internationalisation of the first pillar; the digital fluency that transforms older adults' social lives is continuous with the technological adoption that preoccupies the second. Read this way, the issue's apparently disparate subjects — a Chinese student's language anxiety, an administrator's caution about AI, an older couple's move to active-ageing housing, a postgraduate's convenience diet — are facets of a single social transformation in which education is both agent and object.

There is, running beneath all three pillars, an economic logic that this journal's business orientation brings into focus. Higher education is among Thailand's more promising service exports, and its expansion is financed in significant part by international tuition; the adoption of educational technology is a capital and management decision as much as a pedagogical one; and the ageing society that thins domestic enrolments simultaneously creates the silver-economy markets into which universities can teach and research. Education, technology, and demography are bound together not only by social meaning but by money, and treating them as a single strategic problem is as much a matter of institutional finance as of educational philosophy.

For educators, the implication is that student support, technological investment, and community engagement should be designed together rather than commissioned as separate projects; a service-learning programme that also builds AI literacy and eases cross-cultural adjustment does more than three initiatives pursued in parallel. For policymakers, the internationalisation of higher education, the governance of educational technology, and the response to an ageing society are not three portfolios but one, and coherence among them is the real prize. For social scientists, the issue argues for studying education and community as a coupled system, since the most interesting questions — like the most stubborn problems — live in the connections rather than in the categories.

Concluding Remarks

The contributions to this issue can be read singly, and each rewards that reading. They can also be read together, as this editorial has urged, as evidence that internationalisation, technology, and social change in contemporary Thailand form a single, tightly woven fabric. Seen from the educational hub at their centre, the migrating student, the cautious administrator, the connected retiree, and the time-pressed postgraduate are not unrelated subjects but

neighbours in the same transformation. The journal offers this volume to educators, policymakers, and social scientists in that spirit — as an invitation to think across the boundaries that ordinarily keep these conversations apart, and to attend to the connections on which effective, humane, and sustainable change depends.

References

- Aboueldahab, A., Vanutelli, M. E., D'Addario, M., & Steca, P. (2026). Understanding food choices among university students: Dietary identity, decision-making motives, and contextual influences. *Nutrients*, 18(2), 228. <https://doi.org/10.3390/nu18020228>
- Awashreh, R. (2025). Be aware: Navigating challenges in AI-driven higher education. *The International Journal of Interdisciplinary Educational Studies*, 20(1), 203–218. <https://doi.org/10.18848/2327-011X/CGP/v20i01/203-218>
- Baig, M. I., & Yadegaridehkordi, E. (2025). Factors influencing academic staff satisfaction and continuous usage of generative artificial intelligence (GenAI) in higher education. *International Journal of Educational Technology in Higher Education*, 22(1), 5. <https://doi.org/10.1186/s41239-025-00506-4>
- Berry, J. W. (1997). Immigration, acculturation, and adaptation. *Applied Psychology: An International Review*, 46(1), 5–34. <https://doi.org/10.1111/j.1464-0597.1997.tb01087.x>
- Boonpan, T., & Boonyachut, S. (2024). Supporting active aging through value-driven accommodation types for Bangkok's self-reliant elderly. *International Journal of Building, Urban, Interior and Landscape Technology*, 22(2). <https://ph02.tci-thaijo.org/index.php/BUILT/article/view/255688>
- Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign language classroom anxiety. *The Modern Language Journal*, 70(2), 125–132. <https://doi.org/10.1111/j.1540-4781.1986.tb05256.x>
- Knight, J. (2004). Internationalization remodeled: Definition, approaches, and rationales. *Journal of Studies in International Education*, 8(1), 5–31. <https://doi.org/10.1177/1028315303260832>
- Kusumota, L., Diniz, M. A. A., Ribeiro, R. M., Silva, I. L. C. da, Figueira, A. L. G., Rodrigues, F. R., & Rodrigues, R. A. P. (2022). Impact of digital social media on the perception of loneliness and social isolation in older adults. *Revista Latino-Americana de Enfermagem*, 30, e3751. <https://pmc.ncbi.nlm.nih.gov/articles/PMC9132132/>
- Mexhuani, B. (2025). Adopting digital tools in higher education: Opportunities, challenges and theoretical insights. *European Journal of Education*, 60(1), e12819. <https://doi.org/10.1111/ejed.12819>
- Msambwa, M. M., Wen, Z., & Daniel, K. (2025). The impact of AI on the personal and collaborative learning environments in higher education. *European Journal of Education*, 60(1), e12909. <https://doi.org/10.1111/ejed.12909>
- Rodríguez-Zurita, D., Jaya-Montalvo, M., Moreira-Arboleda, J., Raya-Diez, E., & Carrión-Mero, P. (2025). Sustainable development through service learning and community engagement in higher education: A systematic literature review. *International Journal*

of Sustainability in Higher Education, 26(1), 158–201. <https://doi.org/10.1108/IJSHE-10-2023-0461>

Siricharoen, N. (2023). Enhancing university education business: Motivations of Chinese students studying in Thailand. *Journal of ASEAN PLUS Studies*, 4(2), 1–15. <https://so06.tci-thaijo.org/index.php/aseanplus/article/view/266858>

Ward, C., & Kennedy, A. (1999). The measurement of sociocultural adaptation. *International Journal of Intercultural Relations*, 23(4), 659–677. [https://doi.org/10.1016/S0147-1767\(99\)00014-0](https://doi.org/10.1016/S0147-1767(99)00014-0)

Zhou, Y., Jindal-Snape, D., Topping, K., & Todman, J. (2008). Theoretical models of culture shock and adaptation in international students in higher education. *Studies in Higher Education*, 33(1), 63–75. <https://doi.org/10.1080/03075070701794833>

Anxiety and Mental Health in English Learning among Chinese Students at a Thai Public University

Adili Tuersunniyaze, Yue Zhao, Wei Zhang, Tubagus Achmad Darodjat, *Alan Robert White
Rajamangala University of Technology Krungthep, International College

* Corresponding author. E-mail address: alan.w@mail.rmuth.ac.th

Received: March 20, 2026; Revised: April 23, 2026; Accepted: April 23, 2026

Abstract

English learning anxiety is a widespread issue among students, often leading to psychological distress such as stress, low self-confidence, and fear of failure. This study examines the causes of English learning anxiety, its impact on academic performance and mental health, and strategies to reduce these effects. Based on survey responses from 60 students, the study identifies anxiety triggers such as communication apprehension, test anxiety, and social comparison. The findings suggest that a supportive learning environment, confidence-building exercises, and psychological interventions can reduce anxiety levels and improve students' English proficiency and overall well-being.

Keywords: *English learning anxiety, psychological distress, academic performance, test anxiety, communication apprehension, confidence-building exercises.*

Introduction

English language learning often induces significant anxiety among students, particularly those learning it as a second language. This anxiety can hinder their academic performance and overall learning experience. Students face multiple issues while acquiring proficiency, and these challenges are often compounded by feelings of embarrassment, fear, and self-doubt. Understanding the key factors contributing to English learning anxiety, as well as its effects on students' academic outcomes, is critical for developing effective strategies to mitigate these issues. This study explores various sources of anxiety, such as the fear of making mistakes, communication apprehension, test anxiety, and social comparison. It also examines the impact of anxiety on cognitive functions, motivation, and engagement in learning activities. Moreover, this study proposes practical interventions, such as creating supportive learning environments and offering mindfulness techniques, to help alleviate anxiety and enhance students' language learning experiences.

Fear of making mistakes is one of the most common causes of anxiety among English learners. Many students feel embarrassed or ashamed when they mispronounce words or make grammatical errors. This fear often leads to avoidance behaviors, preventing students from fully engaging with the language and hindering their learning progress. Students often experience anxiety when speaking English, particularly in the presence of native speakers. This apprehension arises from the fear of being judged or misunderstood. As a result, students may avoid speaking opportunities, which are essential for developing fluency and confidence in the language. High-stakes English proficiency exams, such as IELTS or TOEFL, induce significant anxiety in students. The pressure to achieve high scores often outweighs students' intrinsic motivation to learn, leading to performance anxiety. This

anxiety can impair concentration and affect test outcomes, further contributing to stress and discouragement. In academic environments, students frequently compare their English skills to those of their peers, which can lead to feelings of inadequacy. The tendency to equate English proficiency with intelligence or success exacerbates these feelings, diminishing self-confidence and increasing anxiety in language learning.

Students who experience high levels of anxiety are less likely to participate in class activities, especially speaking exercises. This lack of participation restricts their opportunities for language practice, ultimately hindering their improvement. Anxiety can impair cognitive functions such as memory retention and focus. When students are anxious, they often have difficulties concentrating on language tasks, making it more difficult for them to learn new vocabulary or understand complex grammar concepts. Anxiety can lead to a decrease in motivation, causing some students to lose interest in learning English altogether. This lack of engagement further perpetuates the cycle of anxiety and underachievement.

A supportive, relaxed classroom atmosphere can significantly reduce students' anxiety levels. Encouraging interaction, offering practice opportunities, and providing positive reinforcement from teachers and peers can help students feel more comfortable and confident. Regular practice in a low-pressure environment, such as group discussions or language exchange programs, can help students gradually build confidence. These activities offer students the chance to practice English without fear of judgment, reducing anxiety over time. Mindfulness techniques, such as deep breathing and meditation, can be useful tools for managing stress. These relaxation methods help students stay calm, focused, and better equipped to handle the anxiety that often accompanies language learning. Providing psychological support, such as counseling or anxiety management workshops, can assist students in managing their anxiety. These interventions can help students develop coping strategies and build resilience, improving their overall experience in English language learning (Daud, Ras, Novitri, & Audia, 2019).

English learning anxiety is a common issue among students, particularly those learning English as a second language. It can significantly affect academic progress and well-being. This anxiety can manifest in various forms, such as fear of making mistakes, communication apprehension, and test anxiety. These factors can reduce students' confidence, participation, and proficiency. Despite growing awareness of this issue, there is limited research on the specific causes and effects of English learning anxiety in higher education.

English learning anxiety is a common and pressing issue among students, often leading to psychological distress that affects both academic performance and mental health. This study is significant in its exploration of the underlying causes of English learning anxiety and its potential impact on students' overall well-being. By identifying key anxiety triggers such as communication apprehension, test anxiety, and social comparison, the study provides valuable insights into the specific challenges that learners face. Understanding these factors is essential for developing effective strategies to support students in overcoming anxiety and improving their language skills. The findings of this study, which emphasize the importance of a supportive learning environment, confidence-building exercises, and psychological interventions, offer practical solutions for educators and institutions seeking to reduce anxiety and enhance students' English proficiency. Ultimately, this research contributes to a deeper understanding of the psychological barriers in language learning and presents actionable recommendations to improve students' academic experiences and mental health.

Literature Review

Learning English as a second language (ESL) is a vital skill in today's globalized society; however, it often generates significant anxiety, particularly among Chinese students. Language learning anxiety has been recognized as a significant barrier to language proficiency, impacting learners' confidence, participation, and academic performance (Horwitz, Horwitz, & Cope, 1986). This literature review examines the causes of English learning anxiety, its effects on students' mental health, and strategies to mitigate its impact.

Ehrman and Oxford (1995) emphasized the role of cognitive and affective learning styles in language acquisition, noting that anxiety undermines self-efficacy and motivation. MacIntyre and Gardner (1991) similarly found that anxiety impedes cognitive processes, such as memory retention and linguistic recall. In particular, test anxiety, communication apprehension, and fear of negative evaluation are common among Chinese students, who often face high academic expectations. The fear of making mistakes can lead to avoidance behaviors, limiting opportunities for active language practice. Zheng and Cheng (2018) found that test anxiety is directly linked to lower academic performance, creating a cycle of stress and underachievement. Additionally, issues related to social comparison and self-confidence further intensify English learning anxiety.

Anxiety has long been recognized as a significant affective variable that impacts language learning outcomes across various groups and contexts. It has been consistently linked to English learning achievement, particularly in foreign language settings. A study examining high school students in Chinese EFL (English as a Foreign Language) classrooms found that students experienced relatively high levels of anxiety when learning English. The study revealed that male students exhibited higher anxiety levels compared to their female counterparts. Moreover, high levels of anxiety were found to have a potentially negative effect on students' language learning, hindering their progress. The research also explored potential causes of these heightened anxiety levels and offered recommendations for educators to reduce student anxiety in the classroom environment (Na, 2007).

Another study conducted with high school students in Dezhou City, Shandong Province, also focused on English learning anxiety in EFL classrooms. The findings again indicated that students exhibited considerable anxiety regarding their English learning. Similar to the previous study, males were found to experience higher anxiety levels than females. Furthermore, the study suggested that anxiety could impair students' language learning, particularly in classroom situations where speaking English was required. The researchers emphasized the importance of addressing these anxiety issues and provided practical suggestions for teachers to help alleviate student anxiety during lessons (Cui, 2011).

Research on anxiety in undergraduate Chinese students, particularly those majoring in non-English fields, has also highlighted the impact of anxiety on language acquisition. A study involving students at different proficiency levels found that students across all levels experienced anxiety when speaking English in class. Interestingly, the more proficient students tended to feel less anxious than their less proficient peers. The study also identified that students experienced the highest levels of anxiety when responding to the teacher or when singled out to speak in front of the class. Conversely, students felt the least anxious during pair work activities. The research suggested that greater exposure to English, particularly oral communication, helped reduce anxiety over time, highlighting the beneficial effects of practice in alleviating language-related stress (Liu, 2006).

Further research has explored anxiety within the context of an immersive English learning environment, specifically in a summer camp setting. The study focused on Chinese undergraduate non-English majors and examined their anxiety levels across three different proficiency levels. The research found that a significant number of students felt anxious

when speaking English with native-speaking teachers and volunteers, both inside and outside the classroom. However, the study also noted that more proficient students experienced less anxiety in these situations. Additionally, students felt less anxiety when learning English in a non-examination context, such as cultural immersion activities, which was contrasted with the typical pressure of exam-based learning. These findings underscored the role of a relaxed, non-exam-focused environment in reducing anxiety and promoting more effective language learning (Jing & Junying, 2016).

The studies reviewed highlight the pervasive nature of language learning anxiety and its significant impact on student engagement and performance in foreign language acquisition. Factors such as proficiency level, gender, the type of learning environment, and exposure to English outside traditional classroom settings play crucial roles in determining the extent of anxiety experienced by learners. Additionally, these studies suggest that teachers can play an important role in mitigating anxiety through thoughtful classroom management and by creating environments that foster comfort and confidence in students. Further research in this area could continue to explore effective strategies for reducing anxiety and promoting positive learning experiences in EFL settings.

Addressing English learning anxiety requires a multifaceted approach. Research indicates that a supportive and interactive learning environment can significantly reduce stress and anxiety levels among students (British Council, n.d.). Psychological interventions, such as mindfulness techniques and self-regulated learning strategies, have also been shown to enhance learners' confidence and resilience. By integrating these strategies into language instruction, educators can help students overcome psychological barriers and improve their proficiency in English.

This study aims to contribute to the existing body of research on English learning anxiety by identifying primary anxiety triggers and suggesting effective intervention strategies. Understanding the complex relationship between anxiety, cognitive processes, and language acquisition can provide valuable insights for developing practical solutions that improve students' language competence and well-being.

Methodology

As globalization accelerates, English has become a vital tool for international communication. The accurate assessment of English proficiency holds significant implications for both educational development and students' future career prospects. To explore the English anxiety levels of students, this study employed a questionnaire to gather comprehensive data. The study included 60 higher education students from China studying at a Thai public university. A structured questionnaire was used, featuring statements to assess students' experiences with English learning anxiety. The survey responses were analyzed quantitatively to identify trends. The findings underscore the widespread prevalence of anxiety and suggest potential interventions to help students overcome psychological barriers in language learning.

Results and Discussion

The results of the survey indicate that anxiety is a common experience for students learning English. Just over 20% of respondents reported feeling anxious or nervous "always" when learning English, while around 18% said they often felt anxious. Only a small percentage (5%) reported never feeling anxious. These findings suggest that anxiety is a pervasive issue for many learners, significantly impacting their ability to engage with the language.

When asked specifically about speaking in class, over 40% of respondents reported feeling anxious, and 45% expressed anxiety when speaking with native English speakers. This highlights the specific challenges that students face when using English in real-world contexts, where fear of judgment or making mistakes can inhibit participation. The results further show that nearly half of the respondents experienced nervousness when taking English proficiency tests, demonstrating that test anxiety is another significant factor affecting students' performance.

The fear of making mistakes is a prominent concern for many students. Nearly 50% of respondents admitted they were scared or very scared of making mistakes, and almost 60% reported avoiding speaking English altogether due to this fear. This fear of errors likely contributes to reduced practice opportunities, which in turn hinders their language development.

Additionally, the survey revealed that anxiety negatively affected students' enjoyment of learning English, with approximately 75% of respondents acknowledging that anxiety had a detrimental impact on their overall learning experience. This loss of enjoyment may contribute to diminished motivation, making it more difficult for students to persist in their language learning journey.

Over half of the respondents reported losing confidence in speaking English, further illustrating the debilitating effects of anxiety on self-esteem and willingness to engage in conversations. This lack of confidence can create a cycle, where anxiety leads to avoidance behaviors, which in turn results in less language practice and slower progress.

When asked about potential solutions to mitigate anxiety, around 60% of respondents suggested that a relaxed classroom atmosphere with positive feedback would be beneficial. This indicates that students recognize the importance of a supportive and encouraging environment in reducing anxiety and fostering a more positive learning experience. The results underscore the significant role that anxiety plays in the language learning process. Anxiety affects various aspects of students' experiences, including their confidence, willingness to participate, and enjoyment of the learning process.

The findings of this study confirm the pervasive nature of English learning anxiety among Chinese higher education students, aligning with previous research while providing specific quantitative insights into the extent and manifestations of this phenomenon. The results demonstrate that anxiety is not merely an occasional concern but a persistent challenge that affects the majority of students in their English language learning journey.

The finding that over 38% of students experience anxiety frequently or always when learning English underscores the widespread nature of this issue. This prevalence rate is consistent with previous studies by Na (2007) and Cui (2011), which identified high anxiety levels among Chinese EFL learners. However, the current study provides more nuanced data, revealing that only 5% of students never experience anxiety, indicating that English learning anxiety affects virtually all students to some degree.

The specific contexts in which anxiety manifests are particularly revealing. The finding that over 40% of students feel anxious when speaking in class and 45% experience anxiety when speaking with native English speakers highlights the social and performance aspects of language anxiety. This aligns with MacIntyre and Gardner's (1991) research on communication apprehension and supports the theoretical framework that identifies fear of negative evaluation as a core component of language learning anxiety.

The study reveals a concerning pattern of avoidance behaviors, with nearly 60% of students avoiding speaking English due to fear of making mistakes. This finding is particularly significant as it demonstrates how anxiety creates a counterproductive cycle: students avoid the very activities (speaking practice) that are essential for language development, thereby limiting their opportunities for improvement and potentially

reinforcing their anxieties. This phenomenon supports Ehrman and Oxford's (1995) observations about how anxiety undermines self-efficacy and creates barriers to effective language acquisition.

The impact on confidence is equally troubling, with over half of the respondents reporting a loss of confidence in speaking English. This finding suggests that anxiety not only affects immediate performance but also has lasting effects on students' self-perception and willingness to engage with the language. The relationship between anxiety and reduced enjoyment of learning (reported by 75% of respondents) further indicates that anxiety affects intrinsic motivation, potentially leading to long-term disengagement from English learning.

The finding that nearly half of the students experience nervousness during English proficiency tests supports the existing literature on test anxiety as a distinct component of language learning anxiety. This is particularly relevant in the Chinese educational context, where high-stakes testing often determines academic and career opportunities. The prevalence of test anxiety may be exacerbated by the exam-oriented nature of Chinese education systems, creating additional pressure that extends beyond typical language learning challenges.

The finding that 60% of students identify a relaxed classroom atmosphere with positive feedback as beneficial suggests that learners possess insight into potential solutions for their anxiety. This finding is encouraging as it indicates student readiness to engage with supportive interventions. The students' recognition of environmental factors as crucial aligns with research emphasizing the importance of creating psychologically safe learning spaces.

The results support the multidimensional nature of language learning anxiety as conceptualized by Horwitz, Horwitz, and Cope (1986). The study confirms that anxiety manifests across different contexts (classroom speaking, interaction with native speakers, testing situations) and affects multiple aspects of learning (participation, confidence, enjoyment, and performance). The findings also support the theoretical understanding that anxiety creates cognitive interference, as evidenced by students' avoidance behaviors and reported difficulties in engaging with language learning activities.

The high levels of anxiety observed in this study may be influenced by specific cultural factors within Chinese educational contexts. The emphasis on academic achievement, the traditional teacher-centered classroom model, and cultural norms around avoiding loss of face may contribute to heightened anxiety levels. The finding that students feel more anxious when speaking with native speakers may reflect additional cultural barriers related to cross-cultural communication and perceived linguistic inadequacy.

Based on students' identification of relaxed classroom atmospheres as beneficial, educators should prioritize creating psychologically safe learning spaces. This includes establishing clear expectations that mistakes are part of the learning process, implementing positive reinforcement strategies, and modeling acceptance of errors as learning opportunities. Classroom activities should be designed to minimize competitive elements that might exacerbate social comparison anxiety. Given the high levels of speaking anxiety, educators should develop structured approaches to gradually increase students' comfort with oral communication. This could include starting with low-stakes speaking activities such as pair work (which Liu (2006) found to be less anxiety-provoking), progressing to small group discussions, and eventually building to more formal presentations. The progression should be carefully scaffolded to build confidence incrementally. Institutions should consider incorporating explicit anxiety management strategies into English language curricula. This could include mindfulness techniques, breathing exercises, and cognitive restructuring methods that help students reframe negative thoughts about their language abilities. Such training should be presented as normal and beneficial rather than remedial to avoid stigmatization. Given the high prevalence of test anxiety, educators should explore diverse

assessment approaches that reduce the pressure of high-stakes testing. This might include portfolio-based assessment, peer evaluation components, self-assessment opportunities, and formative assessment practices that provide ongoing feedback rather than summative judgment. Institutions should establish dedicated support services for students experiencing significant language learning anxiety. This could include counseling services specifically trained in language learning issues, peer support groups, and workshops focused on building confidence in English communication.

Programs should include components that help students develop cross-cultural communication skills and reduce anxiety about interacting with native speakers. This training should address cultural differences in communication styles and help students understand that communication effectiveness is more important than perfect linguistic accuracy. Curricula should be designed to value the learning process and effort rather than focusing solely on linguistic accuracy and performance outcomes. This approach can help reduce the fear of making mistakes that affects nearly 50% of students in this study. Given students' comfort with digital platforms, educators should leverage technology to create low-pressure practice opportunities. This might include online speaking practice platforms, virtual reality environments for simulated conversations, and digital portfolios that allow students to practice and receive feedback in less threatening contexts.

Institutions should invest in comprehensive professional development programs that train faculty to recognize signs of language learning anxiety and implement evidence-based strategies to address it. This training should be ongoing rather than one-time events to ensure sustained implementation of supportive practices. Administrators should allocate resources specifically for addressing language learning anxiety, including funding for counseling services, anxiety management programs, and faculty training initiatives. The widespread nature of the problem justifies dedicated resource investment. Institutions should establish systematic approaches to monitor and evaluate the effectiveness of anxiety reduction interventions. This includes collecting ongoing data about student anxiety levels and the success of various support strategies.

The findings of this study demonstrate that English learning anxiety is a significant and widespread challenge that requires systematic, multi-faceted responses from educators, institutions, and policymakers. While the prevalence of anxiety is concerning, students' recognition of potential solutions and the existing body of research on effective interventions provide grounds for optimism. Success in addressing this challenge will require sustained commitment to creating supportive learning environments, implementing evidence-based interventions, and maintaining focus on students' psychological well-being as an integral component of language education.

Conclusion and Suggestions

This study highlights the pervasive impact of anxiety on students learning English, particularly in speaking and testing situations. The results suggest that fear of making mistakes, communication apprehension, and test anxiety are significant factors contributing to students' reluctance to engage in English learning. The anxiety experienced by many students leads to reduced participation, lower confidence, and diminished enjoyment of the learning process. However, the study also points to potential solutions, with students expressing a preference for a relaxed and supportive learning environment to alleviate their anxiety. These findings emphasize the importance of addressing emotional and psychological barriers in language learning to enhance both proficiency and well-being.

Future research should further explore the specific factors contributing to English learning anxiety in diverse contexts, such as different cultural settings and age groups.

Longitudinal studies could examine how anxiety evolves over time and its long-term effects on language acquisition. Additionally, the effectiveness of various interventions, such as mindfulness practices, peer support programs, and cognitive-behavioral strategies, could be assessed to determine the most effective approaches to reducing anxiety. Further research into the relationship between anxiety, motivation, and language proficiency would provide deeper insights into how anxiety interacts with other psychological factors in the language learning process. Finally, exploring how digital tools and online learning platforms can offer anxiety-reducing features may provide new avenues for enhancing language education in the digital age.

References

- British Council. (n.d.). How to reduce anxiety when speaking English. Retrieved from <https://learnenglish.britishcouncil.org/english-levels/improve-your-english-level/how-reduce-anxiety-when-speaking-english>
- Cui, J. (2011). Research on High School Students' English Learning Anxiety. *Journal of Language Teaching & Research*, 2 (4).
- Daud, A., Ras, F., Novitri, N., & Audia, C.P. (2019). Factors contributing to speaking anxiety: A case study of pre-service English teachers. *Journal of Educational Sciences*, 3 (3), 412-422.
- Ehrman, M.E., & Oxford, R.L. (1995). Cognition plus: Correlates of language learning success. *The modern language journal*, 79 (1), 67-89.
- Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign language classroom anxiety. *The Modern language journal*, 70 (2), 125-132.
- Jing, H., & Junying, Z. (2016). A Study on Anxiety in Chinese EFL University Students. *English Language Teaching*, 9 (9), 179-184.
- Liu, M. (2006). Anxiety in Chinese EFL students at different proficiency levels. *System*, 34 (3), 301-316.
- MacIntyre, PD, & Gardner, R.C. (1991). Methods and results in the study of anxiety and language learning: A review of the literature. *Language learning*, 41(1), 85-117.
- Na, Z. (2007). A study of high school students' English learning anxiety. *Asian EFL Journal*, 9 (3), 22-34.
- Zheng, Y., & Cheng, L. (2018). How does anxiety influence language performance? From the perspectives of foreign language classroom anxiety and cognitive test anxiety. *Language Testing in Asia*, 8 (1), 1-19.

Navigating Language, Food, and Transportation: The Cross-Cultural Experiences of Chinese Students in Thailand

Zhang Yu, Wei Wang, Alan Robert White, *Tubagus Achmad Darodjat

* Corresponding author. E-mail address: bagus2m@gmail.com

Received: October 3, 2025; Revised: April 18, 2026; Accepted: April 18, 2026

Abstract

This study explores the experiences of Chinese undergraduate students studying in Thailand, focusing on language barriers, food culture, and transportation issues. A total of 42 second-year Chinese students enrolled in a business program participated in semi-structured interviews. The findings indicate that students predominantly used Chinese within their social groups, with limited interaction in English or Thai, which affected both academic performance and social integration. Many students reported difficulties with vocabulary, grammar, pronunciation, and fluency, largely due to a lack of speaking practice in their English education in China. Regarding food, some students struggled with the taste of Thai cuisine, finding it either too sweet or too spicy, while others adapted and ate Thai food regularly. Additionally, while transportation was not a significant issue, the heat and distance for some students created minor discomforts. The study suggests that increased focus on language practice and cultural adaptation could improve the experience of Chinese students studying in Thailand.

Keywords: Chinese students, Thailand, language barriers, food culture, transportation, academic performance, social integration, English proficiency, cultural adaptation, international students.

Introduction

Studying in Thailand offers Chinese students an opportunity to experience a unique academic and cultural environment. Thailand attracts many international students due to its diverse educational programs and the chance to experience its rich traditions and modern developments. The country is known for its beautiful landscapes and vibrant food culture. However, students often face difficulties in adjusting to the local language, food, and transportation systems. This paper examines how Chinese undergraduate students in Thailand navigate issues related to language, public transport, and food culture. These factors shape their daily lives and academic experiences in the country.

Language barriers present a significant issue for Chinese students in Thailand, especially in academic settings. Many Thai people can communicate in basic English, but students often find it difficult to fully engage in lectures and discussions. This paper discusses the specific communication issues that Chinese students encounter, including difficulties in understanding technical terminology and participating in class. Additionally, daily life activities, such as asking for directions, ordering food, or negotiating rent, can be complicated due to language differences. The food culture in Thailand also presents differences that students need to adjust to. Thai cuisine, with its use of ingredients like lemongrass, chili peppers, and fish sauce, differs greatly from Chinese food. This adjustment

to Thai food adds to the overall adaptation process for Chinese students living and studying in Thailand.

Chinese students studying in Thailand often face significant difficulties when adapting to the local language, food, and transportation systems. Despite the growing number of international students in the country, the challenges related to communication barriers, unfamiliar food culture, and navigating public transportation remain underexplored. The lack of fluency in Thai or English can hinder academic success and everyday activities, making it difficult for students to engage fully with their studies and social life. Furthermore, adjusting to the local food culture, which is distinct from Chinese culinary traditions, can create additional obstacles. Understanding the extent of these issues is vital for addressing the needs of Chinese students and improving their overall experience in Thailand (Packer, 2025; Postings, 2025).

This research aims to contribute to the understanding of the specific difficulties faced by Chinese students studying in Thailand. By examining language barriers, food culture, and transportation issues, the study will provide valuable insights into the practical challenges that hinder students' ability to adapt and integrate into their new environment. The findings will help universities, policymakers, and support organizations design targeted interventions to enhance the experience of international students, ensuring they can thrive academically and socially. Moreover, the research will shed light on how these challenges can influence students' well-being, academic performance, and cultural integration, ultimately contributing to a more inclusive and supportive international student community in Thailand.

Literature Review

The increasing number of Chinese students choosing to pursue their degrees in upper northern Thailand, particularly after the Chinese government's recent educational reforms, highlights an evolving trend in international higher education. Despite the growth of this trend, the process of cross-cultural adaptation remains a significant challenge for Chinese students and directly influences their academic success. Sun et al. (2020) aimed to investigate Chinese students' performance in four areas of cross-cultural adaptation: social-cultural, academic, environmental, and psychological. The study, which surveyed 314 students from eight northern Thai universities, identified that students' adaptation followed a typical "U-Curve" pattern, meaning that students initially faced challenges but gradually adjusted. The research further identified eleven primary challenges faced by Chinese students, including issues with campus life, course comprehension, job prospects, and integration into Thai society. These findings underscore the need for tailored support systems at Thai universities to ease students' adaptation and improve their academic performance.

A similar investigation into the experiences of Chinese students in Thailand highlights the complex nature of their cultural adaptation. Jiang et al. (2024) used qualitative methods to examine the adaptation processes of 37 Chinese students majoring in management. Their findings revealed that a range of factors—such as environmental changes, socio-cultural integration, economic conditions, and urban-rural disparities—shaped students' adaptation strategies. These factors not only influenced how students adjusted to life in Thailand but also illuminated broader themes in the adaptation process. The study emphasized that understanding the multiple layers of adaptation could better inform policies to support international students. Moreover, the research underlined the significance of fostering inclusive environments within educational institutions and local communities, helping transnational students thrive academically and socially.

Nomnian (2018) further explored the educational differences between China and Thailand, focusing on Chinese students' expectations and their experiences of learning English in Thailand. The concept of "cultures of learning" was central to this study, which examined how Chinese students' learning styles were shaped by both Chinese and Thai educational cultures. The research found that Chinese students often encountered a mismatch between their educational expectations and the teaching methods employed in Thai universities. Factors such as differing pedagogical philosophies, values, and cultural contexts were found to influence the students' learning strategies and classroom interactions. This study suggests that understanding these cultural differences is essential for improving teaching methodologies, especially in cross-cultural educational settings, and ensuring that international students receive an educational experience that is both effective and culturally appropriate.

Ye (2020) focused on the factors influencing Chinese students' decisions to study in Thailand, employing a survey of 402 students across 20 universities. The study found that several factors—economic, political, social, cultural, and personal—significantly impacted the decision-making process, with economic factors being the most influential. Additionally, the research identified the primary sources of information that students relied upon during their application process, such as educational agents, joint programs, and online platforms. Understanding these factors is crucial for Thai universities as they aim to attract more international students, particularly from China, by addressing the elements that play a role in students' decisions and enhancing their recruitment strategies.

Raktham (2015) conducted research on Chinese students' preparation for studying in Thailand and their adjustment to the Thai academic and social environment. Prior to departure, the students received orientation and Thai language lessons, which were deemed useful by the students. However, after three months in Thailand, many students reported academic difficulties, such as inadequate programs, inferior teaching styles, and language barriers. These challenges were seen as more pressing than socio-cultural adjustments, which are commonly discussed in literature on international students. The study's findings suggest that Chinese students' primary challenges lie in the academic sphere rather than social integration, highlighting a gap in the support systems provided by Thai universities for international students facing academic difficulties.

In an effort to improve Chinese students' language acquisition and cultural understanding, Talodpob et al. (2025) explored the role of extracurricular activities in teaching Thai as a foreign language at North Bangkok University. Their research showed that Chinese students preferred learning Thai through real-life activities outside the classroom, such as cooking Thai food or learning through songs. The study also identified speaking Thai as the most challenging aspect of language learning, with students requesting more opportunities to practice in daily life contexts. These findings suggest that language learning for international students can be significantly enhanced through interactive, culturally immersive activities, which not only promote language acquisition but also provide deeper cultural understanding.

Lertpusit (2022) compared Thailand's potential as an education hub with Malaysia, examining factors that attract Chinese students to both countries. The study found that Malaysia's government investment in higher education institutions has positioned it as a competitive destination for international students. In contrast, Thailand has not consistently prioritized international education and lacks a coherent national strategy to attract foreign students. This disparity has led to fewer international students choosing Thailand for their studies, despite the country's strong cultural appeal. The study emphasizes that while Thailand's unique cultural assets, such as the Thai language and culture, could serve as a powerful pull factor, Thai universities must adopt more proactive strategies and government support to capitalize on this potential and attract international students.

These studies offer valuable insights into the challenges and opportunities faced by Chinese students studying in Thailand. From their adjustment to academic environments to their cultural integration and language learning, these studies highlight the multifaceted nature of cross-cultural adaptation. They underscore the importance of providing tailored support systems at both the institutional and governmental levels, as well as the need for more proactive strategies to enhance the experience of international students in Thailand. Understanding these dynamics is essential for improving the educational environment and ensuring that international students can succeed both academically and socially.

Methodology

This study employed a qualitative research design to explore the experiences of Chinese undergraduate students studying in Thailand, specifically focusing on language barriers, food culture, and transportation issues. A total of 42 second-year Chinese students enrolled in a business program at a university in Thailand were selected as participants. The sample was mixed-gender, ensuring a diverse representation of experiences. Data were collected through semi-structured interviews, which allowed for in-depth exploration of participants' personal experiences and perceptions regarding the challenges they faced in adapting to life in Thailand. Open-ended questions were used during the interviews to encourage detailed responses and provide rich, contextual data. The questions aimed to elicit information about students' difficulties with communication in academic and social settings, their experiences with Thai food and dining culture, and the challenges they encountered when using public transportation.

The interviews were conducted in a comfortable, confidential setting to encourage open and honest responses. Each participant was informed about the purpose of the study, and their consent was obtained before the interview began. The data collected were analyzed thematically to identify common patterns and recurring themes in students' responses. This approach allowed for a comprehensive understanding of the issues faced by Chinese students in Thailand. Ethical considerations were a primary concern throughout the research process. Participants were assured of the confidentiality of their responses, and their identities were anonymized in any publications or reports. Participation was voluntary, and students had the right to withdraw from the study at any time without consequence. Additionally, the research ensured that participants were not subjected to any harm or discomfort during the interview process.

Results and Discussion

The interviews revealed several consistent themes regarding the language, food, and transportation experiences of Chinese students in Thailand. In terms of language use, most students (93%) did not speak much English outside of the classroom. They primarily communicated in Chinese within their social groups and had limited interaction with Thai people. This language barrier affected both their academic work and social integration. Many students (71%) reported difficulties with grammar and, more significantly, a lack of vocabulary. These issues made it hard to express complex ideas, particularly in academic settings. Most students also had difficulties with pronunciation and fluency, making natural speech difficult. It was noted that English classes in China focused less on speaking practice, leaving students unprepared for real-life communication in English-speaking environments.

Regarding food, opinions varied. Some students (35%) found Thai food too sweet or too spicy, and some avoided it altogether. Others, however, had become accustomed to the taste

and ate Thai food regularly. A few students (15%) mentioned that portion sizes were smaller than expected and not as filling. In terms of transportation, students did not view it as a significant issue. Most students (81%) lived in university housing close to campus and could walk to classes and nearby amenities. However, the heat was noted as uncomfortable during the day. Public transportation in the area was generally adequate, and students felt the proximity to the city center made daily commuting easy. Overall, transportation was not a major concern, although the heat was an occasional discomfort.

The results from the interviews indicate that language, food, and transportation are important factors shaping the experiences of Chinese students in Thailand. Language was a significant issue. Most students did not speak English outside of the classroom and communicated in Chinese within their social groups. This limited interaction with Thai people affected both academic work and social integration. Many students had difficulty with vocabulary, grammar, pronunciation, and fluency, making it hard to express complex ideas. These difficulties were linked to English instruction in China, which focused more on reading and writing than on speaking practice. As a result, students were unprepared for English communication in real-life situations.

Food and transportation were less problematic. Students had mixed opinions about Thai food. Some found it too sweet or spicy, while others adjusted to the taste. A few students also noted that portion sizes were smaller than expected. Transportation was not a major issue for most students. They lived close to campus and could easily walk to classes and nearby amenities. The heat during the day was an occasional discomfort, but public transportation was sufficient for daily needs. In conclusion, language barriers significantly impacted students' academic and social experiences, while food and transportation required some adjustment but did not present major obstacles. Improving language preparedness and cultural adaptation may enhance the experience for international students.

These findings reflect how language, food, and the environment shape the experiences of Chinese students in Thailand. The limited use of English outside the classroom, along with vocabulary and pronunciation issues, affected academic and social interactions. Food and transportation were less problematic but still presented some adjustments. The study suggests that more focus on speaking practice and cultural adaptation could improve the student experience.

The findings of this study reveal a complex pattern of adaptation challenges faced by Chinese undergraduate students in Thailand, with language barriers emerging as the most significant obstacle to successful integration. The results confirm previous research by Sun et al. (2020) and Jiang et al. (2024) regarding the multifaceted nature of cross-cultural adaptation, while providing specific insights into how language, food, and transportation issues manifest in students' daily experiences.

The most striking finding relates to language use patterns among Chinese students, which demonstrates a concerning level of linguistic isolation. The fact that students primarily communicate in Chinese within their social groups and have limited interaction with Thai people suggests the formation of linguistic enclaves that may inadvertently hinder integration. This pattern aligns with Nomnian's (2018) observations about the mismatch between Chinese students' educational expectations and the reality of studying in Thailand. The students' difficulties with vocabulary, grammar, pronunciation, and fluency reflect deeper systemic issues in English language preparation in China, where instruction traditionally emphasizes reading and writing skills over oral communication. This educational approach leaves students inadequately prepared for the communicative demands of studying abroad, where speaking and listening skills are crucial for academic success and social integration.

The impact of these language barriers extends beyond mere communication difficulties to affect students' overall academic and social experiences. The inability to express complex ideas effectively in English creates obstacles not only in classroom participation and academic discourse but also in forming meaningful relationships with local students and community members. This linguistic limitation perpetuates a cycle of isolation, where students retreat into Chinese-speaking communities for comfort, thereby reducing opportunities for English practice and cultural immersion. The findings suggest that many students may be missing out on the full benefits of international education due to these communication constraints.

Regarding food culture adaptation, the results present a more nuanced picture than might be expected. While some students struggle with the sweetness and spiciness of Thai cuisine, others have successfully adapted to local flavors, indicating that food adjustment is highly individual and potentially more manageable than language barriers. The mention of smaller portion sizes as a concern suggests that food adaptation involves not only taste preferences but also expectations about meal structure and satisfaction. However, the relatively moderate nature of food-related challenges compared to language issues indicates that students possess greater flexibility in dietary adaptation than in linguistic acquisition.

The finding that transportation is not considered a major issue by most students reflects the practical benefits of living in university housing close to campus. The walkability of the campus environment and adequate public transportation infrastructure appear to mitigate potential mobility challenges. However, the recurring mention of heat discomfort during daytime travel suggests that environmental factors play a role in students' daily experiences and may influence their willingness to explore beyond their immediate campus environment.

The contrast between the severity of language challenges and the relative manageability of food and transportation issues highlights the hierarchical nature of adaptation challenges. While practical matters like transportation can often be resolved through infrastructure and proximity, language barriers represent more fundamental obstacles that require sustained effort and systematic intervention. This hierarchy aligns with Raktham's (2015) findings that academic difficulties often outweigh socio-cultural adjustment challenges for Chinese students in Thailand.

The study's findings also raise questions about the effectiveness of pre-departure preparation programs. Despite some institutions providing orientation and language lessons, as noted by Raktham (2015), students continue to arrive inadequately prepared for the communicative demands of their new environment. This suggests that current preparation programs may need fundamental restructuring to address the gap between language instruction and practical communication needs.

Based on these findings, several recommendations emerge for improving the experiences of Chinese students studying in Thailand. Universities should implement comprehensive English language support programs that extend beyond traditional classroom instruction to include conversational practice sessions, peer mentoring programs pairing Chinese students with local or international English-speaking students, and structured opportunities for cross-cultural interaction. These programs should specifically target the oral communication skills that students identify as most challenging, incorporating practical scenarios such as academic discussions, social conversations, and daily life interactions.

Institutions should also consider establishing bridge programs that help students transition from Chinese educational contexts to Thai academic environments. These programs could include intensive English communication workshops, cultural orientation sessions that address not only Thai culture but also international academic expectations, and gradual integration activities that encourage interaction with local students while providing adequate

support. The programs should be designed to prevent the formation of linguistic enclaves by creating structured opportunities for meaningful cross-cultural engagement.

Thai universities should invest in faculty development programs to help instructors better support international students with diverse language backgrounds. This training should include strategies for facilitating classroom participation among students with varying English proficiency levels, techniques for providing feedback that encourages rather than intimidates students with language challenges, and methods for creating inclusive learning environments that value diverse perspectives and communication styles.

Support services should extend beyond the classroom to address the broader integration challenges identified in this study. Universities could establish international student centers that provide ongoing language support, cultural adaptation resources, and opportunities for cross-cultural exchange. These centers could organize regular social events, cultural immersion activities, and practical workshops that help students navigate daily life challenges while building confidence in their English communication skills.

The study also suggests that Chinese educational institutions should reconsider their English language curricula to better prepare students for international study experiences. This could involve increasing emphasis on oral communication skills, incorporating more interactive and communicative teaching methods, and providing students with realistic expectations about the language demands of studying abroad. Collaboration between Chinese and Thai educational institutions could facilitate the development of preparation programs that specifically address the challenges identified in this research.

For food-related adaptation, universities could consider providing dining options that accommodate diverse tastes while encouraging students to explore local cuisine gradually. This might include offering fusion options that bridge Chinese and Thai flavors, providing information about local ingredients and cooking methods, and organizing cultural food events that create positive associations with Thai cuisine.

Transportation infrastructure improvements, while less critical according to this study, could still enhance students' overall experience. Universities might consider providing information about local transportation options, organizing group activities that help students explore the broader community, and ensuring that campus shuttle services accommodate the heat-related concerns students expressed.

Conclusion and Suggestions

This study reveals the various difficulties faced by Chinese undergraduate students studying in Thailand, particularly related to language barriers, food culture, and transportation. Language issues, especially the limited use of English and challenges with vocabulary, grammar, pronunciation, and fluency, significantly impact both academic performance and social integration. Although some students have adapted to Thai food, many find it too sweet or spicy, and the smaller portion sizes pose another adjustment. Transportation was not a major issue for most students due to the proximity of their accommodation to campus; however, the heat and occasional discomfort still affected their daily routines. Overall, the findings suggest that addressing language proficiency, providing more opportunities for practical communication, and supporting cultural adaptation could enhance the experience of Chinese students in Thailand, increasing better academic and social outcomes.

Further research could explore the long-term impact of language proficiency on the academic success and social integration of Chinese students in Thailand. Future studies might examine how different teaching methods or language support programs, such as conversation practice or immersive language experiences, influence students' ability to

overcome communication barriers. Additionally, research could investigate how the adjustment to Thai food culture evolves over time and how it affects students' overall well-being and sense of belonging. Another area for further exploration could be the role of social networks and peer support in helping students navigate these cultural challenges. Finally, comparative studies between students from different countries could provide a broader understanding of how cultural differences in food, language, and transportation are experienced by international students in Thailand.

References

- Jiang, S., Xu, T., Li, H., Li, M., & Wang, H. (2024). Modeling the Societal Adaptation and Challenge: Living Experience of Chinese Students Studying in Thailand Higher Education Institutions. *Rajapark Journal*, 18 (59), 27-49.
- Lertpusit, S. (2022). Driving Thailand to become a regional education hub: An analysis of the factors of attraction among Chinese students in Thailand and Malaysia. *GMSARN International Journal*, 16 (1), 66-74.
- Nomnian, S. (2018). Chinese Overseas Students' Perspectives on Benefits and Limitations of English Language Learning and Teaching between China and Thailand. *Arab World English Journal*, 9 (2).
- Packer, H. (2025, February 5). Investors follow as Chinese students flock to Thai universities: Chinese students are crucial to Thailand's international education ambitions, but quality concerns pose a risk. *Times Higher Education*.
<https://www.timeshighereducation.com/news/investors-follow-chinese-students-flock-thai-universities>
- Postings, R. (2025). Chinese students grapple with study and language pressures, report finds. *The PIE News*. <https://thepienews.com/chinese-students-grapple-with-study-and-language-pressure-report-finds/>
- Raktham, C. (2015, August). Academic and Socio-cultural Adjustment of Chinese Exchange Students Studying in Thailand. In *2nd International Conference on Language, Literature, and Cultural Studies, August* (pp. 137-151).
- Sun, K., Yossuck, P., Panyadee, C., & Ek-lem, B. (2020). The Process of Chinese Students' Cross-cultural Adaptation and Their Main Difficulties Encountered while Studying in the Upper Northern Thai Universities. *Humanities, Arts and Social Sciences Studies*, 343-372.
- Talodpob, N., Suraseranee, P., Sawathamar, P., & Triwattoranon, W. (2025). The Need for Organizing Activities to Promote the Teaching of Thai as a Foreign Language for Chinese Students at North Bangkok University. *International Journal of Multidisciplinary in Management and Tourism*, 9 (1), 1-10.
- Ye, Y. (2020). Factors affecting the decision-making of the Chinese students to study in higher education institutions in Thailand. *Romphruek Journal of the Humanities and Social Sciences*, 38 (1), 101-117.

Motivations for Chinese Students Enrolling in International Programs in Thailand

Li Yixuan, Shuhao Wang, Liqing Ren, Alan White and *Tubagus Achmad Darodjat
Rajamangala University of Technology Krungthep, International College

* Corresponding author. E-mail address: bagus2m@gmail.com

Received: March 20, 2026; Revised: April 25, 2026; Accepted: April 30, 2026

Abstract

This study explores the motivations and challenges faced by international students choosing Thailand as their study destination. A survey was conducted with 36 international students, using a structured questionnaire that assessed factors such as tuition costs, cultural experiences, academic reputation, and career goals. The results revealed that the most significant factors influencing students' decisions were affordability (80%), cultural immersion (75%), academic reputation (65%), and career opportunities (50%). Despite challenges like language barriers and cultural differences, most students reported satisfaction with the support provided by Thai universities, including language courses, cultural workshops, and counseling services. These findings highlight Thailand's appeal as a study destination, offering a combination of affordable education, rich cultural experiences, and growing career prospects. The study underscores the importance of university support in helping international students navigate cultural adaptation and succeed academically. Further research is suggested to explore the long-term career outcomes of graduates and the specific support mechanisms that enhance international students' experiences in Thailand.

Keywords: International students, Thailand, study destination, cultural immersion, tuition costs, academic reputation, career opportunities, cross-cultural adaptation, university support, student challenges, cultural differences, language barriers.

Introduction

In recent years, Thailand has become a prominent destination for international students, offering a unique combination of affordable education, cultural diversity, and high-quality academic programs. Thai universities attract students with their low tuition fees compared to Western countries while maintaining strong academic standards, with institutions like Chulalongkorn and Mahidol University gaining global recognition. Additionally, scholarships and financial aid programs further alleviate the financial burden for international students. The country's lower cost of living compared to Europe and the United States makes it an attractive option for students looking to manage their expenses while studying in major cities like Bangkok or Chiang Mai (Packer, 2025; QS World University Rankings. n.d; The Nation, 2023; University Guru, 2025).

Thailand's educational system is increasingly popular due to its diverse academic programs, internationalization, and ease of application. Universities in Thailand typically have lower language and application requirements compared to those in Europe and

America, with many offering programs taught in English. This, combined with Thailand's rich cultural heritage and vibrant environment, provides students with unique cultural experiences and opportunities for building international connections. Additionally, the expanding presence of Chinese-funded enterprises in Thailand creates job opportunities for students who understand Chinese culture and language, while Thailand's booming tourism industry also offers positions for students with language skills (Packer, 2025; QS World University Rankings. n.d; The Nation, 2023; University Guru, 2025).

This research provides valuable insights into the factors influencing international students' decisions to study in Thailand, shedding light on the key motivations and challenges they encounter. As Thailand becomes an increasingly popular destination for higher education, understanding these factors is crucial for Thai universities, policymakers, and education agents to better cater to the needs of international students. The study emphasizes the importance of affordability, cultural immersion, academic quality, and career prospects in attracting international students, contributing to the growing recognition of Thailand's educational offerings on the global stage.

Furthermore, the research highlights the challenges that international students face, particularly in terms of language barriers and cultural adaptation. By focusing on the support systems provided by Thai universities, the study underscores the role of these institutions in facilitating a smoother transition for international students and enhancing their overall experience. This research also has broader implications for improving international student recruitment strategies, fostering intercultural understanding, and enhancing the global competitiveness of Thai higher education. The findings provide a foundation for future studies that can explore the long-term outcomes of studying in Thailand and contribute to the development of best practices in international education.

Literature Review

Studying abroad offers students a chance to engage in a world-class learning environment, gain diverse cultural exposure, and expand their personal and professional networks. However, foreign students face challenges such as meeting financial and eligibility requirements, adapting to a new culture, and coping with homesickness. The article discusses these pros and cons, aiming to help individuals make an informed decision. It notes that while some students struggle with language and cultural barriers, the trend has shifted away from language learning; in 2014, for example, only 5% of American study abroad students took up courses in world languages, with the majority enrolled in other fields like STEM (23%), social sciences (22%), and business (20%). The benefits of studying abroad are significant and include civic engagement, knowledge production, and social entrepreneurship, often influencing students to pursue graduate school. It also provides a chance to see things from a different perspective, increasing cultural awareness and empathy. The experience takes students out of their comfort zone, fostering independence and valuable life skills like budgeting and time management. Studies have shown that students who study abroad have improved study habits, increased confidence, and an increase in their grade point average compared to their peers. Furthermore, foreign study graduates impress employers with their global perspective; a 2011 QS Global Employer Survey found that six out of ten employers give extra credit for international experience, with high demand in industries such as Energy (71%) and Travel and Hospitality (64%). A 2017 Study International article also reported that students who studied abroad are more resilient, confident, and independent than those who were locally educated. The opportunity for travel to new places is also a key benefit (Bouchrika, 2025).

Based on a survey of 555 international university students in Taiwan, a study identified key motivations for studying abroad. The most important "push" factor was the desire for international travel and experience, while the most important "pull" factor was the host country's tourism attractions. The study concluded that although education remains a fundamental motivation, tourism-related factors play an even more significant role in the decision-making process. The research also highlighted that international students are not a homogeneous group, as their motivations vary by nationality and level of study, and it suggested that strategic alliances between higher education and tourism sectors could be beneficial (Lee, 2017).

This study explored the rationales for international student mobility (ISM) beyond the traditional economic and employability-focused perspectives. It used a framework based on Sen's capability approach to identify four dimensions of students' motivations: educational, experiential, aspirational, and economic. The article critiques internationalization policies that are solely focused on economic imperatives, arguing that such a narrow approach may fail to provide a transformative experience for students. The authors recommend a re-imagining of policy to better represent a broader range of student rationales (Fakunle, 2021).

A qualitative study interviewed a total of 64 international undergraduate students from 26 countries at a Canadian university to investigate their motivations for studying abroad. Using thematic analysis, the study identified eight underlying motivational themes, including the desire for new experiences, quality of education, improved career prospects, and immigration opportunities. Other factors were the qualities of the host country and institution, financial reasons, location, and having friends or relatives in the host country. The study found that many of these factors aligned with Arnett's theory of emerging adulthood, while others were unique to international students, offering universities valuable insights to help students achieve their goals (Wintre, et al. 2015).

A systematic review aimed to understand the factors influencing healthcare students' decisions regarding study abroad programs, noting a low participation rate among this group despite the benefits. The review, which included ten studies (5 qualitative, 5 surveys), found that factors influencing these decisions are similar across different geographical locations and professional groups. Supportive factors included having sufficient information about programs early on, a genuine interest in other cultures, and positive role models among faculty and family. The primary barriers were identified as cost and language issues, with language being a significant deterrent even when financial support is available. The study suggests that promoting study abroad opportunities must start early and include detailed information and language support (Brown, et al. 2016).

A study with international students at Regional Western University (RMU) examined their reasons for choosing the institution and the perceived barriers and benefits of studying abroad. Participants stated that having a friend or relative who had previously attended RMU was a significant factor in their decision. They reported challenges such as academic language barriers, a lack of familiarity with culturally expected classroom practices, and difficulty finding off-campus housing. The students overwhelmingly agreed that the most important benefit was the cultural awareness and competence they gained (Milian, et al. 2015).

A study exploring the motivations of Chinese students who intend to study abroad used survey data from two major universities in China in 2018. It noted that the annual population of Chinese students studying abroad has increased dramatically since 1991, peaking at 703,500 in 2019. The research found that intellectual capital, at both the family and personal levels, has the strongest influence on the intention to study abroad, more so than economic capital. The primary reason for pursuing international education is to accumulate intellectual

capital, while the lack of sufficient financial support is the main deterrent. The study also found that gender played a role in the intention to study abroad (Lu, et al. 2024).

A paper analyzed macro data from China's National Bureau of Statistics from 2005 to 2021 to understand how variables such as the economy, epidemics, and policies have influenced the number of students studying abroad. The study used various models, including multiple linear regression, machine learning, and time series models, to predict future trends. The research concluded that a combined model based on weight assignment provided a more accurate prediction of future trends than a single model alone (Li, 2022).

The increasing number of Chinese students choosing to study in Thailand can be attributed to various socio-economic and educational factors, particularly in light of China's "One Belt and One Road" (OBOR) initiative. This literature review explores the key determinants influencing Chinese students' decisions to pursue higher education in Thailand, as well as the challenges they face in adapting to the cultural environment. One significant issue that many Chinese students face during their time in Thailand is cross-cultural adaptation. Kang, Yossuck, Panyadee, and Ek-lem (2019) conducted a study on Chinese undergraduates across eight universities in Northern Thailand, focusing on the factors affecting their adaptation. They tested Young Yun Kim's model of cross-cultural adaptation, which includes six dimensions: Communication Competence (CC), Host Social Communication (HSC), Intercultural Transformation (IT), Environment (EN), and Predisposition (PR). Their findings indicated that five of these dimensions significantly influenced the students' adaptation process, with nine specific factors showing a strong positive correlation with successful adaptation. These factors included social communication skills, intercultural transformation, and environmental factors, underlining the importance of both personal competence and external support in adapting to a new cultural setting.

In addition to adaptation challenges, the decision-making process for Chinese students to study in Thailand has been influenced by a range of factors. Ye (2020) conducted a study on 402 Chinese students studying at 20 universities in Thailand, examining the economic, political, social, cultural, and personal factors impacting their decisions. The results indicated that all five categories played a significant role in the students' decision-making process, with these factors accounting for 78.9% of the variance in their decision. The study also highlighted the channels through which students gathered information about studying in Thailand, such as educational agents, joint programs, referrals from friends, online applications, and education exhibitions.

Zhongcheng (2013) used the Push and Pull Model to examine the factors influencing Chinese students' choice to study in Thailand. The study found that an international environment and the use of English as a medium of instruction were key pull factors, suggesting that Chinese students increasingly prioritize international exposure and English language skills in their educational pursuits. Furthermore, Jiakai (2018) focused on students studying in Bangkok, emphasizing how university reputation, perceived value of university facilities, and student expenditure significantly affected their decisions to study in the capital. These findings collectively suggest that Chinese students' decisions to study in Thailand are shaped by both personal and external factors, with a particular emphasis on internationalization, academic quality, and financial considerations.

Methodology

A survey was conducted among 36 international students to explore their motivations for choosing Thailand as their study destination. The study utilized a structured questionnaire

that examined several key factors, including tuition costs, cultural experiences, academic reputation, and career goals. Participants were asked to rate the importance of these factors in their decision-making process, providing valuable insights into the elements that influenced their choice of Thailand for higher education.

In conducting this survey, ethical considerations were prioritized to ensure the well-being and rights of the participants. Informed consent was obtained from all respondents, ensuring they were fully aware of the purpose of the study and how their responses would be used. Confidentiality was maintained by anonymizing all survey data, and participants were assured that their identities would not be linked to any findings in the final report. Participation was voluntary, and students were given the option to withdraw from the study at any time without penalty. Additionally, the survey was designed to avoid any form of harm, ensuring that the questions were respectful and did not cause discomfort to the respondents. The study adhered to ethical guidelines for research involving human participants, maintaining transparency, respect, and integrity throughout the process.

Results and Discussion

The survey conducted among 36 international students revealed several key motivations behind their decision to study in Thailand. The most prominent factor, cited by 80% of the respondents, was the affordability of education. This aligns with previous research indicating that Thailand's relatively low tuition fees compared to Western countries make it an attractive destination for students, particularly those seeking high-quality education without the financial burden associated with universities in Europe or the United States. In addition to cost, 75% of students highlighted the opportunity for cultural immersion as a key reason for choosing Thailand. Many international students are drawn to the country's rich cultural heritage, diverse traditions, and the opportunity to experience life in a unique environment that differs significantly from their home countries. Academic reputation also played an important role, with 65% of respondents citing it as a contributing factor. Thai universities, particularly top institutions like Chulalongkorn University and Mahidol University, are gaining international recognition for their academic excellence, which adds to the appeal of studying in the country. Finally, 50% of students mentioned career opportunities as an important reason for selecting Thailand, reflecting the country's growing role as a hub for international businesses and industries, particularly in sectors like tourism, trade, and technology.

Discussion

Despite the numerous benefits, the survey also highlighted several challenges that international students face while studying in Thailand. The most significant challenges reported were language barriers and cultural differences. Many students found it difficult to communicate in a country where Thai is the predominant language, especially in non-academic settings. This created a sense of isolation for some students and added complexity to their daily interactions. Additionally, cultural differences, ranging from social customs to food habits, were also cited as initial hurdles that made adaptation more challenging. However, despite these challenges, most students expressed satisfaction with the support provided by Thai universities in helping them navigate these difficulties. Many institutions offer language courses, cultural workshops, and counseling services to assist international students in adapting to life in Thailand. These support mechanisms were crucial in easing the transition and ensuring that students were able to thrive academically and socially. Moreover, the cultural immersion experience, although initially challenging, ultimately became an opportunity for personal growth. Students reported that overcoming these barriers helped them develop resilience, intercultural competence, and a deeper understanding of

global diversity. The support provided by universities, along with the students' own efforts to adapt, transformed the challenges into opportunities for enrichment, creating a positive overall experience during their studies in Thailand.

Conclusion and Suggestions

The survey conducted among 36 international students studying in Thailand revealed several key factors influencing their decision to pursue higher education in the country. The affordability of education was the most prominent factor, with 80% of respondents citing it as a primary motivation. Additionally, 75% of students valued the opportunity for cultural immersion, while 65% considered the academic reputation of Thai universities an important factor in their decision. The growing career opportunities available in Thailand also played a significant role, with 50% of students indicating that career prospects influenced their choice. Despite challenges such as language barriers and cultural differences, students reported satisfaction with the support provided by Thai universities in overcoming these difficulties. The combination of affordable education, cultural experiences, academic quality, and career opportunities makes Thailand an increasingly attractive study destination for international students.

While this study provides valuable insights into the factors motivating international students to study in Thailand, further research is needed to explore these findings in greater depth and across a larger, more diverse sample. Future studies could investigate the specific types of cultural experiences that international students find most valuable, as well as the long-term career outcomes for graduates who studied in Thailand. Additionally, examining the impact of Thai universities' support services on student adaptation and success could offer insights into best practices for enhancing the international student experience. It would also be beneficial to conduct comparative studies with students studying in other countries to better understand what makes Thailand a unique or competitive choice. Finally, exploring the challenges and opportunities faced by students from specific countries or regions could provide a more nuanced understanding of how different groups experience studying in Thailand and how universities can tailor their support services to meet the needs of diverse student populations.

References

- Bouchrika, I. (2025). Studying Abroad for 2025: Reasons, Challenges & Tips. Education.
- Brown, M., Boateng, E. A., & Evans, C. (2016). Should I stay or should I go? A systematic review of factors that influence healthcare students' decisions around study abroad programmes. *Nurse Education Today*, 39, 63-71.
- Fakunle, O. (2021). Developing a framework for international students' rationales for studying abroad, beyond economic factors. *Policy Futures in Education*, 19(6), 671-690.
- Jiakai, X. (2018). Factors Influencing Chinese Students' Decision to Study in Thai Universities around Bangkok, Thailand.

- Kang, S., Yossuck, APDP, Panyadee, C., & Ek-lem, APDB (2019). Influencing factors of cross-cultural adaptation process of Chinese students studying in the upper Northern Thai universities. *Mediterranean Journal of Social Sciences*.
- Lee, C. F. (2017). Exploring motivations for studying abroad: A case study of Taiwan. *Tourism Analysis*, 22(4), 523-536.
- Li, Z. (2022). Forecast and Analysis of Reasons for Changes in the Number of Students Studying Abroad. *context*, 24.
- Lu, Y., Jean, J., & Lu, Z. (2024). To study abroad or not, and why? Exploring Chinese university students' postgraduate intentions. In *Intellectual Migration* (pp. 22-44). Routledge.
- Milian, M., Birnbaum, M., Cardona, B., & Nicholson, B. (2015). Personal and professional challenges and benefits of studying abroad. *Journal of International Education and Leadership*, 5(1), n1.
- Packer, H. (2025, February 5). *Investors follow as Chinese students flock to Thai universities: Chinese students are crucial to Thailand's international education ambitions, but quality concerns pose a risk*. Times Higher Education.
<https://www.timeshighereducation.com/news/investors-follow-chinese-students-flock-thai-universities>
- QS World University Rankings. (n.d.). *QS World University Rankings 2025 - World*. University Rankings.
<https://www.universityrankings.ch/results?ranking=qs®ion=world&year=&q=Thailand>
- The Nation. (2023, January 11). *Thai universities welcome return of Chinese students*. The Nation. <https://www.nationthailand.com/thailand/general/40024439>
- University Guru. (2025). *Rankings of universities in Thailand 2025*.
https://www.universityguru.com/universities--thailand#google_vignette

Ye, Y. (2020). Factors affecting the decision-making of the Chinese students to study in higher education institutions in Thailand. *Romphruek Journal of the Humanities and Social Sciences* , 38 (1), 101-117.

Zhongcheng, A. (2013). Aspects of Globalization in Higher Education: Why Chinese Students Choose to Study in Thailand'. *Stamford Journal*, 5 (1), 30-36.

Student On-Campus Coffee Drinking Habits Among Post-Graduate Students in Thailand

Zhang Jichang and *Tubagus Achmad Darodjat, Alan White, Rajamangala University of Technology Krungthep, International College

* Corresponding author. E-mail address: bagus2m@gmail.com

Received: March 20, 2026; Revised: April 23, 2026; Accepted: April 30, 2026

Abstract

This study examines the coffee drinking habits of post-graduate students in an international program at a university in Thailand. With the increasing popularity of coffee culture among students worldwide, understanding coffee consumption on campus is important for its role in academic and social life. The research focuses on the frequency of coffee consumption, preferred locations, and the impact of coffee on study habits. A 15-item Likert scale questionnaire was administered to 20 post-graduate students to assess their coffee habits and its potential effect on productivity and social interactions. The results show that coffee consumption plays a significant role in both academic and social settings, with students reporting improved focus and relaxation as benefits. Some students, however, expressed concerns about the health risks associated with excessive coffee consumption.

Keywords: *Coffee consumption, Post-graduate students, Study habits, Social interactions, Productivity, Health effects*

Introduction

Coffee has been a common feature on university campuses, offering students a quick source of caffeine for late-night study sessions and early morning lectures. For many post-graduate students, coffee is more than a beverage; it is a social ritual, a source of comfort, and a tool for productivity. The growing presence of coffee shops on and around university campuses has made coffee consumption a regular part of students' routines. These establishments provide spaces for social interaction and relaxation, while also supporting focused study and concentration.

The relationship between coffee consumption and academic performance has been a subject of interest in recent years, with research suggesting that moderate caffeine intake may enhance focus, alertness, and cognitive function (Patton, 2022). For many students, coffee is a vital part of their academic journey. Coffee shops, both on and off-campus, have become spaces where students can engage in study groups, take a break, or network with peers (Mocha's and Javas, 2022). The casual, yet focused, environment of a coffee shop can promote concentration and help mitigate stress, making it an attractive study venue for students.

This study investigates the coffee drinking habits of post-graduate students enrolled in an international program at a university in Thailand. Coffee consumption has become deeply embedded in the daily routines of students worldwide, especially in academic environments. With its widespread popularity, understanding how coffee consumption affects students' academic performance, social interactions, and overall well-being is critical. This research addresses a gap in understanding how coffee consumption influences study habits, productivity, and social engagement among post-graduate students.

The significance of this study lies in its potential to inform university policies and initiatives aimed at improving the student experience. As coffee is often associated with both academic performance and social interactions, exploring students' consumption patterns can provide valuable insights into how these habits impact productivity, focus, and stress levels. Additionally, understanding students' concerns about the health effects of excessive coffee intake can guide universities in developing strategies to promote healthy consumption behaviors. Ultimately, this research can contribute to the design of campus spaces and services that enhance both the academic and social environments for students.

Literature Review

The issue of caffeine consumption among college students has garnered increasing attention due to concerns regarding its potential health implications, particularly the combined use of energy drinks and alcohol. Several studies have examined the role of caffeine in students' academic and personal lives, providing valuable insights into consumption patterns, associated health risks, and the influence on study habits.

Lee et al. (2013) investigated the dietary habits and caffeine consumption of 190 college students in Incheon, South Korea. The study grouped participants into three categories based on their caffeine intake to assess nutrient intake and dietary quality. The findings revealed that most students consumed coffee daily, with males averaging 156.8 mL and females 157.4 mL.

Popular coffee drinks included caramel macchiatos, café lattes, and americanos, with slight gender preferences. Students with higher caffeine intake exhibited greater emotional and utilitarian motivations for drinking coffee, particularly related to flavor and the prevention of sleepiness. Moreover, the study found a positive correlation between coffee intake and the use of nutrition labels, especially among female participants. These results highlight the need for nutrition education about the impact of coffee consumption on overall dietary habits.

Viado (2024) explored the perceived effects of coffee consumption on study habits at Cavite State University, surveying 208 students. The study found that a majority of students consumed coffee daily, with 76.44% drinking coffee regularly and 57.21% preferring both hot and cold types. Most students believed that coffee positively affected cognitive function, energy levels, productivity, and mood during study sessions. However, some students reported experiencing dependency and withdrawal symptoms, emphasizing the potential negative consequences of excessive coffee consumption. The study suggests that coffee is an integral part of students' academic lives but calls for further research on its potential risks, particularly concerning dependency.

Svikis et al. (2022) examined the associations between caffeine consumption (from both energy drinks and coffee) and substance use behaviors among 1,986 college freshmen. The study found that students consuming both energy drinks and coffee were more likely to exhibit symptoms of alcohol dependence, engage in risky behaviors, and have a family history of substance abuse or mental health issues. The study concluded that caffeine use, particularly from energy drinks combined with coffee, may contribute to higher rates of substance use and problem behaviors, highlighting the importance of considering both sources of caffeine when studying their effects on health and risky behaviors.

Stachyshyn et al. (2021) assessed the caffeine consumption habits of 317 New Zealand tertiary students. Nearly all participants consumed caffeinated products regularly, with coffee, tea, and chocolate being the most common sources. The study found that one-third of participants consumed caffeine levels above the threshold for adverse health effects, and 14.3% exceeded the recommended safe daily limit of 400 mg. Despite experiencing adverse symptoms, such as distress or negative impacts on daily life, most participants did not reduce their caffeine intake. This suggests that public health initiatives targeting tertiary students may be necessary to mitigate the potential harms associated with excessive caffeine consumption.

The consumption of coffee and caffeinated beverages among university students has emerged as a significant area of research, with studies examining various factors that influence drinking behaviors, associated health risks, and cultural variations in consumption patterns.

This literature review synthesizes findings from multiple studies conducted across different geographical locations and cultural contexts to provide a comprehensive understanding of coffee consumption patterns among young adults in academic settings.

Cross-cultural research by Yan and Li (2016) examined factors affecting coffee consumption among university students in Sweden and China, revealing that both external factors such as culture, price, and social influences, as well as internal factors including personality, psychological influences, learning, and knowledge, significantly impact consumer behaviors. Their mixed-methods study demonstrated distinct consumption characteristics across different cultural contexts, highlighting the importance of understanding local consumer preferences for effective market penetration. The study particularly emphasized price as a crucial determinant in coffee selection, suggesting that affordability remains a primary consideration for student consumers across different economic contexts.

The relationship between beverage consumption patterns and lifestyle factors has been extensively documented in research conducted among Korean university students. Kim et al. (2011) investigated commercial beverage consumption patterns among 407 male university students, categorizing participants into rare, moderate, and frequent consumption groups based on weekly serving frequencies. Their findings revealed that frequent consumers of commercial beverages, including coffee, were more likely to engage in problematic dietary behaviors such as frequent snacking, meal skipping, eating out, consuming processed foods, and drinking alcoholic beverages. This pattern suggests that high coffee consumption may be part of a broader constellation of lifestyle choices that could impact overall nutritional quality and health outcomes.

The health implications of coffee consumption among students extend beyond dietary considerations to encompass broader risk behaviors and physical health indicators. Research conducted at Universitas Airlangga by Gizi et al. (2023) found significant correlations between coffee drinking habits and blood pressure among student organization members, alongside associations with nutritional status and high sodium diet consumption. This cross-sectional study of 80 students highlighted the potential cardiovascular implications of coffee consumption, particularly when combined with other dietary risk factors common among university populations.

Further evidence of coffee consumption as part of a cluster of risk behaviors emerges from research conducted among Romanian medical students. Goția et al. (2013) found that 58.34% of surveyed students consumed coffee regularly, with higher incidence rates among female students compared to males. Their study revealed that coffee consumption often co-occurred

with other risk behaviors including smoking, irregular eating patterns, and sedentary lifestyle choices. The researchers noted that students frequently lacked regular meal schedules and predominantly consumed fast food, suggesting that coffee consumption may serve as a compensatory behavior for inadequate nutrition or irregular lifestyle patterns.

The distinction between different types of caffeinated beverages and their associated behavioral correlates has been explored in research comparing energy drink and coffee consumption patterns. Kelly and Prichard (2016) conducted a comprehensive study of 159 university students, comparing high-end energy drink consumers with frequent coffee drinkers. Their findings revealed significant differences between these two groups, with high-end energy drink consumers demonstrating more risk-taking behaviors, including increased drug and alcohol use, less frequent seat belt use, and greater sleep disturbances. In contrast, frequent coffee drinkers did not show significantly different patterns of risk behaviors, sleep disturbances, or mental illness diagnoses compared to the general population, suggesting that coffee consumption may represent a less problematic form of caffeine intake among university students.

Recent research conducted among Indonesian university students has further illuminated the social and environmental factors influencing coffee consumption patterns. Ramadhiani et al. (2023) found that 52.5% of surveyed non-health undergraduate students demonstrated high levels of coffee drink consumption, defined as three to four times per week or more. Their analysis identified peer influence as the dominant factor affecting consumption levels, alongside smoking behavior, availability of coffee at home, and accessibility factors. This finding underscores the significant role of social networks and environmental availability in shaping consumption behaviors among young adults.

The body of literature consistently demonstrates that coffee consumption among university students is influenced by a complex interplay of cultural, social, economic, and personal factors. Studies reveal concerning associations between high coffee consumption and various health and behavioral risk factors, including poor dietary habits, irregular eating patterns, elevated blood pressure, and engagement in other risk behaviors. However, research also suggests important distinctions between different types of caffeinated beverages, with coffee consumption appearing less problematic than energy drink use in terms of associated risk behaviors.

The prevalence of coffee consumption among university students across different cultural contexts appears remarkably consistent, with studies reporting rates ranging from approximately 36% to 75% depending on the specific population and measurement criteria

employed. Cultural factors play a significant role in consumption patterns, as evidenced by the differences observed between Swedish and Chinese students, while economic factors such as price sensitivity remain important considerations across different contexts.

The literature highlights several areas requiring attention in future research and intervention development. The social nature of coffee consumption, particularly the influence of peer networks and social acceptance, suggests that intervention strategies should consider group-based approaches rather than focusing solely on individual behavior change. Additionally, the association between coffee consumption and broader lifestyle patterns indicates that comprehensive health promotion programs may be more effective than targeted interventions focusing exclusively on caffeine intake.

Educational implications emerge from these findings, particularly the observation that many students remain unaware of caffeine content in various beverages and may not recognize the potential health implications of their consumption patterns. The consistent association between coffee consumption and irregular eating patterns, poor dietary quality, and other risk behaviors suggests that coffee drinking may serve as an indicator of broader lifestyle issues that warrant attention in student health and wellness programs.

Together, these studies emphasize the widespread consumption of caffeine among college students, its impact on academic performance, and the potential risks associated with excessive intake. While caffeine, particularly in coffee, is commonly consumed for its cognitive and mood-enhancing effects, there is growing evidence that excessive consumption may contribute to dependency and other health-related concerns. Public health strategies that address these issues, including education on moderation and healthier alternatives, could help reduce potential harms linked to caffeine consumption among students.

Methodology

This research employed a quantitative approach to assess the coffee drinking habits of 20 post-graduate students enrolled in an international program at a university in Thailand. The sample size was chosen to reflect a small, yet representative group of students who regularly consume coffee on campus. Participants were selected through convenience sampling from a pool of students who volunteered to participate in the study. The study sample consisted of 20 post-graduate students (12 male, 8 female). The students were from diverse cultural backgrounds, with a mix of Thai and international students. All participants were aged between 22 and 35 years.

Data were collected through an online 15-item Likert scale questionnaire, which was designed to gather information on participants' coffee consumption habits, preferences, and perceptions. The questionnaire covered topics such as the frequency of coffee consumption, preferred locations for drinking coffee, and the perceived benefits and drawbacks of drinking coffee in relation to academic performance. The responses were measured on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). The questionnaire was distributed via email, and participants were given one week to complete it. The collected data were analyzed using descriptive statistics to identify patterns in coffee drinking habits.

Results and Discussion

The study identified several key findings regarding the coffee consumption habits of 20 post-graduate students enrolled in an international program at a university in Thailand.

Regarding the frequency of coffee consumption, 90% of participants reported drinking coffee at least once a day, with 40% consuming it two or more times daily. Only 10% consumed coffee occasionally, typically once or twice a week.

In terms of preferred locations for drinking coffee, 75% of students favored on-campus coffee shops or study lounges, while 25% preferred off-campus cafes or drinking coffee at home.

The perceived benefits of coffee consumption were also notable. A majority, 80%, believed that coffee helped improve focus and maintain alertness during study sessions. Additionally, 60% of participants viewed coffee as a social tool, often drinking it with classmates or colleagues during breaks or after lectures.

In terms of productivity, 70% of students reported feeling more productive after drinking coffee. Furthermore, 55% felt that coffee helped reduce stress levels during periods of heavy academic workload.

Health considerations emerged as a concern for some participants. Half of the students, 50%, expressed worries about the potential health effects of excessive coffee consumption. Additionally, 40% made efforts to limit their coffee intake to avoid negative effects such as anxiety or sleep disturbances.

Lastly, regarding coffee preferences, 65% of students preferred espresso-based drinks, such as lattes and cappuccinos, while 35% favored regular drip coffee or instant coffee.

The results of this study indicate that coffee consumption is an integral part of the daily routine for many post-graduate students in Thailand. The majority of participants reported

drinking coffee at least once a day, and on-campus coffee shops were the preferred locations for coffee consumption. This reflects the broader global trend of coffee shops serving as informal study spaces, where students can focus, collaborate, and relax (Arriaga, 2021).

The reported benefits of coffee, particularly its role in enhancing focus and productivity, are consistent with existing literature that suggests moderate caffeine consumption can improve cognitive function and concentration (Patton, 2022). For many students, coffee is not only a tool for academic performance but also a social activity. The finding that 60% of students use coffee as a social tool suggests that coffee drinking serves as an important avenue for networking and building relationships within the academic community (Mocha's and Javas, 2022).

However, the concerns raised by some students about the potential health effects of excessive coffee consumption warrant attention. Although coffee is widely consumed for its stimulating effects, overconsumption can lead to negative side effects, such as increased anxiety, sleep disruption, and dependence (Patel, & Pownal, 2024). Universities could play a role in educating students about the healthy consumption of coffee and providing alternative, non-caffeinated beverages in study spaces.

Based on the study's findings, several recommendations are proposed for university administrators, student support services, and future students to enhance the on-campus academic and social experience. These recommendations aim to leverage the positive aspects of coffee culture while addressing the concerns highlighted by students.

Thai universities should consider creating more designated coffee and study zones on campus. These spaces could be designed to promote a balance between focused work and social interaction. For example, some areas could be designated as quiet zones for individual study, while others could be designed to facilitate group work and social gatherings. This would acknowledge the dual role of coffee in academic life and provide students with a variety of environments to suit their needs.

To address students' concerns about the health risks of excessive coffee consumption, universities could launch awareness campaigns or provide educational materials on responsible caffeine intake. These initiatives could be part of broader wellness programs and could offer information on healthy hydration, sleep hygiene, and alternative ways to boost energy and focus. Providing a wider range of healthy, non-caffeinated beverage options in on-campus cafes and vending machines would also offer students more choices.

Finally, for post-graduate students, a proactive approach to managing their coffee consumption is recommended. Students should be encouraged to monitor their intake and pay

attention to how coffee affects their sleep and stress levels. Utilizing on-campus resources, such as health and wellness centers, can provide additional support and guidance. By consciously integrating coffee into their routine, students can maximize its benefits for productivity and social engagement while minimizing potential negative health impacts.

Conclusion and Suggestions

This research provides valuable insights into the coffee drinking habits of post-graduate students in Thailand, highlighting the significant role that coffee plays in both academic and social contexts. Coffee consumption is highly prevalent among students, with many citing its benefits for focus, productivity, and socializing. However, concerns about the potential health effects of excessive coffee intake suggest that universities should consider promoting balanced coffee consumption and offering alternative beverages to support students' overall well-being.

Future studies should investigate the long-term effects of coffee consumption on post-graduate students' academic performance, especially the potential risks of excessive caffeine intake. A longitudinal study tracking cognitive and academic outcomes over a semester or academic year would offer valuable information on the sustained impact of coffee on focus and productivity.

Research could also explore the relationship between coffee consumption and overall health, specifically its effects on sleep, stress, and mental health. It would be useful to compare students who limit their caffeine intake with those who consume larger amounts to assess any differences in stress management and academic performance.

Additionally, future studies could examine the role of coffee in social interactions. Since many students reported drinking coffee as a social activity, understanding how coffee consumption influences networking and academic collaboration would be beneficial. Research could explore whether social coffee consumption affects academic success and relationships among post-graduate students.

Research may also focus on the effectiveness of educational programs designed to promote healthy coffee consumption. Investigating how universities can educate students about the risks of excessive coffee consumption and offer non-caffeinated alternatives could improve student well-being and reduce negative side effects such as anxiety and sleep disturbances.

Finally, cross-cultural studies comparing coffee consumption habits among post-graduate students from different regions would be valuable. Examining how cultural differences

influence coffee consumption could provide a broader understanding of the impact of caffeine on students' academic lives.

References

- Arriaga, A. (2021). *The magic of coffee shops explained by a college student*. Retrieved from <https://spoonuniversity.com/school/emerson/the-magic-of-coffee-shops-explained-by-a-college-student>
- Gizi, H. S., Makan, P., & dan Tekanan, K. M. K. (2023). Association of Nutritional Status, Diet, Coffee Drinking Habits and Blood Pressure of Universitas Airlangga Students. *Nutrition*, 7(2), 267-273.
- Goția, S. L., Goția, S. R., & Gurban, C. (2013). Nutrition, coffee, alcohol consumption in students' life style. *Palestrica of the third millennium-Civilization and sport*, 14(1).
- Kelly, C. K., & Prichard, J. R. (2016). Demographics, health, and risk behaviors of young adults who drink energy drinks and coffee beverages. *Journal of caffeine research*, 6(2), 73-81.
- Kim, H., Han, S. N., Song, K., & Lee, H. (2011). Lifestyle, dietary habits and consumption pattern of male university students according to the frequency of commercial beverage consumptions. *Nutrition research and practice*, 5(2), 124-131.
- Lee, YJ, You, JS, & Chang, KJ (2013). Dietary habits score, nutrients intake and dietary quality related to coffee consumption of college students in Incheon. *Journal of Nutrition and Health*, 46 (6), 560-572.
- Mocha's and Javas. (2022). *Exploring coffee habits and routines of college students*. Retrieved from <https://www.mochasandjavas.com/exploring-coffee-habits-and-routines-of-college-students/>
- Patel, S. & Pownal, M. (2024). *Pedagogical power of the campus coffee shop*. The Psychologist. Retrieved from <https://www.bps.org.uk/psychologist/pedagogical-power-campus-coffee-shop>

Patton, F. (2022). *The benefits of studying in a coffee shop*. Retrieved from <https://csu-cauldron.com/2022/04/08/the-benefits-of-studying-in-a-coffee-shop/>

Ramadhiani, P., Triyanti, T., & Fikawati, S. (2023). Peer Influence As The Dominant Factor In Coffee Drink Consumption Among Non-Health Major University Of Indonesia Students In 2023. *Indonesian Journal of Public Health Nutrition (IJPHN)*, 4(1), 2.

Stachyshyn, S., Ali, A., Wham, C., Knightbridge-Eager, T., & Rutherford-Markwick, K. (2021). Caffeine consumption habits of new zealand tertiary students. *Nutrients*, 13 (5), 1493.

Svikis, DS, Dillon, PM, Meredith, SE, Thacker, LR, Polak, K., Edwards, AC, ... & Kendler, K. (2022). Coffee and energy drink use patterns in college freshmen: associations with adverse health behaviors and risk factors. *BMC public health*, 22 (1), 594.

Viado, M.P. (2024). Coffee Consumption and its Perceived Effects on the Study Habits of Higher Education Students. *International Journal of Multidisciplinary: Applied Business and Education Research*, 5 (8), 3062-3070.

Yan, M., & Li, Q. (2016). Consumer behavior in coffee drinking: Comparison between Chinese and Swedish university students. Digitala Vetenskapliga Arkivet. <https://www.diva-portal.org/smash/record.jsf?dswid=688&pid=diva2%3A954525>

Risk-Aware but Unprepared: Business Students, AI-Assisted Writing, and Lessons from a Professional Verification Failure

Li Jiashuo¹, Nanyang, Normal University, School of Economics and Management,
Alan Robert White^{2*}, Rajamangala University of Technology Krungthep, International
College

* Corresponding author. E-mail address: alan.w@mail.rmutk.ac.th

Received: ; Revised: ; Accepted:

Abstract

The integration of artificial intelligence tools into document preparation has created unprecedented opportunities and risks for business professionals and students. This study examines the educational implications of AI-assisted writing through a mixed-methods design combining a quantitative survey of 50 international business students with semi-structured interviews of 10 students, situated alongside a critical examination of a high-profile professional AI failure. Quantitative results show that students hold strong, internally consistent risk-aware perceptions of AI-generated legal business text (Risk Awareness subscale $M = 4.27$, $\alpha = .73$, $t(49) = 6.11$, $p < .001$) and qualified trust in its utility (Trust/Substitution subscale $M = 3.84$, $\alpha = .78$, $t(49) = 3.14$, $p = .003$), while general awareness of AI's capabilities remains only moderate (General AI Awareness subscale $M = 3.47$, $\alpha = .87$, $t(49) = 0.57$, $p = .571$) and substantive reliance on AI for actual legal drafting is significantly and strongly avoided (Substantive Reliance subscale $M = 2.27$, $\alpha = .83$, $t(49) = -8.59$, $p < .001$, $d = -1.21$). Interview data corroborate and explain this pattern: students report deliberate avoidance of AI for high-stakes drafting due to accuracy concerns, alongside near-total absence of structured instructor feedback on AI use. A parallel analysis of the January 2026 West Midlands Police case, in which AI-generated fabricated evidence informed operational policing decisions and precipitated institutional crisis, illustrates the real-world consequences of the verification failures that students' own risk-aware attitudes already anticipate. Together, these findings indicate that the central educational gap is not attitudinal but structural: students possess the disposition toward caution but lack the formal training and institutional feedback loops needed to convert that disposition into reliable verification practice. The paper proposes a framework for AI literacy education integrating technical competency, critical evaluation skill, ethical

reasoning, and legal understanding, and argues that curricula must close this gap before students enter professional contexts where verification failures carry institutional, not merely academic, consequences.

Keywords: Artificial Intelligence, legal business writing, business education, AI literacy, verification protocols, professional ethics, curriculum development, critical evaluation, legal documents, educational technology

Introduction

Artificial intelligence has fundamentally altered the landscape of professional writing, particularly in legal and business contexts where precision, accuracy, and compliance with formal standards are paramount. Tools based on large language models now assist in drafting contracts, generating policy documents, reviewing agreements, and preparing formal business correspondence. These technological developments promise increased efficiency, reduced costs, and democratized access to legal writing capabilities previously requiring specialized expertise (Alarie, Niblett, & Yoon, 2018; Gouri, Jindal, Gouri, & Gouri, 2025), and recent applied research has begun to operationalize these promises directly into deployable systems, from AI-powered legal documentation platforms that automate clause suggestion and compliance checking (Hitesh & Pallavi, 2025) to chatbot-driven document generators aimed at non-experts and small businesses (Atharva-Mahajan, Bhor, Patil, Rane, & Reshim, 2025; Pramanik, R, & R., 2025).

However, the proliferation of AI writing tools has outpaced educational preparation and professional guidelines for their responsible use. Undergraduate business students, who represent the next generation of professionals working with these technologies, often encounter AI tools without structured instruction on their limitations, appropriate applications, or ethical considerations (Pham & Luong, 2025). Universities face the challenge of integrating rapidly evolving technologies into established curricula while maintaining academic integrity standards and preparing students for workplace expectations.

Recent events have dramatically illustrated the risks of inadequate AI oversight in professional contexts. In January 2026, West Midlands Police in the United Kingdom faced severe institutional consequences after an AI tool generated fabricated evidence that influenced operational decisions regarding security measures for a football match. The case resulted in calls for senior leadership resignation and a damning assessment from the Home Secretary (BBC News, 2026; Gohil, 2026; Stephenson, 2026). This incident provides a stark real-world

illustration of the consequences when organizations and individuals fail to implement appropriate safeguards for AI-assisted work in contexts with legal and public-safety implications — precisely the kind of failure that AI literacy education aims to prevent.

This research examines the intersection of AI technology, legal business writing, and educational practice through a quantitative and qualitative study of international business students and an analysis of this documented professional failure. The study addresses a gap in business education literature by exploring how undergraduate students perceive and engage with AI tools for legal writing purposes, and by connecting these educational findings directly to a real-world case of professional AI failure, asking what students' own attitudes suggest about how such failures might be prevented through curriculum design.

Research Objectives

This study pursues four objectives. First, to quantify undergraduate business students' awareness, perceptions, usage patterns, and curricular expectations regarding the use of artificial intelligence in legal business writing. Second, to determine the internal structure of these attitudes through reliability-validated analysis, distinguishing genuinely unified constructs from composites that obscure meaningful internal variation. Third, to explain the quantitative pattern through qualitative interview data that surfaces the reasoning underlying students' attitudes and behavior. Fourth, to connect these educational findings to a documented real-world case of professional AI failure, in order to evaluate whether student attitudes already anticipate the verification failures that produce institutional harm, and to derive concrete recommendations for AI literacy curriculum design.

Research Questions

RQ1: To what extent are undergraduate business students aware of AI's capabilities and limitations in generating legal business documents?

RQ2: How do students perceive the reliability, utility, and ethical implications of AI-generated legal text, and do these perceptions form a single attitude or multiple distinct ones?

RQ3: To what extent do students actually use AI tools for legal writing tasks, and does usage vary by task stakes (e.g., grammar support versus substantive drafting)?

RQ4: What do students believe should change in university curricula and institutional policy regarding AI use in legal writing instruction, and does this differ from a generic desire for more AI exposure?

RQ5: How do the patterns identified in RQ1–RQ4 relate to documented failures of AI oversight in professional legal and administrative contexts, and what do they suggest about curriculum design needed to prevent such failures?

Significance of the Study

This study contributes to business education and legal writing pedagogy in three ways. First, it provides a reliability-validated empirical account of how business students' attitudes toward AI-assisted legal writing are actually structured, correcting a common methodological shortcut in survey-based AI-literacy research in which multi-item sections are treated as unified constructs without verification. Second, by triangulating quantitative and qualitative data, it identifies the specific mechanism — risk-aware caution unsupported by formal training — that explains low substantive usage, moving the literature beyond a general observation that "usage is low" toward an actionable account of why. Third, by connecting this educational evidence directly to a contemporaneous professional failure with documented institutional consequences, the study demonstrates that the curriculum gap identified among students is not a hypothetical concern but one with a real-world analogue already playing out in professional practice, lending urgency and concrete stakes to the paper's curricular recommendations.

Problem Statement

Despite the rapid integration of generative AI tools into legal and business writing practice, business education has not kept pace with structured instruction on their responsible use. Students are left to develop their own informal risk assessments of AI-generated legal content, largely without institutional guidance, feedback, or formal verification training. Simultaneously, documented cases in professional practice — most notably the West Midlands Police case examined in this paper — demonstrate that even trained professionals operating within institutional structures can fail catastrophically when AI-generated content is not adequately verified before being acted upon. This study investigates the gap between what students intuitively understand about AI's risks and what they are formally taught, and argues that closing this gap is a matter of professional readiness with consequences extending well beyond the classroom.

Conceptual Framework

The study's conceptual framework holds that responsible professional use of AI in legal business writing depends on four interacting components: technical competency

(understanding what AI tools can and cannot generate), critical evaluation skill (the ability to assess AI output for factual and legal accuracy), ethical reasoning (judgment about appropriate versus inappropriate reliance, disclosure, and academic integrity), and legal understanding (knowledge of the jurisdictional, regulatory, and professional standards that AI-generated text must satisfy). The study's four-section questionnaire structure maps onto this framework: the Awareness section operationalizes technical competency, the Perceptions section operationalizes critical evaluation and a portion of ethical reasoning, the Usage section operationalizes behavioral translation of these attitudes into practice, and the Implications section operationalizes students' own assessment of curricular and legal-understanding needs. The central conceptual claim tested by the study is that these four components do not develop in lockstep: a student may possess strong critical evaluation instincts (as reflected in the Risk Awareness subscale) while lacking the technical competency or formal training needed to act on those instincts reliably and consistently — a misalignment this study's results substantiate empirically and the West Midlands Police case illustrates at professional scale.

Theoretical Framework

The study draws on four established models of technology acceptance and behavioral intention, detailed fully in Section 3.1. The Technology Acceptance Model (Davis, 1989) frames perceived usefulness and perceived ease of use as the primary determinants of adoption behavior, underpinning the Perceptions and Implications sections. Rogers' (2003) Diffusion of Innovations Theory frames awareness as the necessary first stage of technology adoption, underpinning the Awareness section. Ajzen's (1991) Theory of Planned Behavior frames actual behavior as a function of attitudes, subjective norms, and perceived behavioral control, underpinning the Usage section. Beetham and Sharpe's (2007) digital literacy framework extends this beyond pure technology acceptance into questions of academic integrity and professional readiness, underpinning the Implications section. Together, these models predict that awareness should precede and enable usage, and that perceptions should predict behavioral intention — a predictive chain this study's results partially confirm and partially complicate, since elevated risk perceptions are shown to suppress rather than channel usage in the absence of formal training, a dynamic the standard TAM/TPB chain does not, on its own, anticipate.

Literature Review

AI Technology in Legal Writing Contexts

Alarie, Niblett, and Yoon (2018) provided foundational analysis of how AI technologies are reshaping traditional legal work, including tasks historically performed by experienced attorneys. Their research identified both short-term benefits such as improved efficiency and transparency, and long-term uncertainties regarding the evolution of legal services, emphasizing that future professionals must develop understanding of both the opportunities and constraints of AI-supported legal environments.

Gouri, Jindal, Gouri, and Gouri (2025) examined how AI-generated legal documents are transforming corporate law practice, highlighting substantial efficiency gains and cost reductions alongside significant risks including data security vulnerabilities and diminished human oversight. This research is particularly relevant for business students learning legal writing, as it reflects practical concerns in documentation processes where AI is increasingly embedded.

Hitesh and Pallavi (2025) described the architecture of an AI-powered Legal Documentation System combining natural language processing, machine learning, and intelligent automation to support contract generation, clause suggestion, document formatting, and risk identification. Their account of the underlying technical capabilities provides a concrete referent for what business students mean, or should mean, when they report awareness of AI's capacity to assist in drafting legal documents, and is directly relevant to interpreting the General Awareness subscale findings reported in this study.

Atharva-Mahajan, Bhor, Patil, Rane, and Reshim (2025) presented a legal chatbot and document generator (ReFlaPsy) designed specifically to assist non-experts and small businesses, combining a recommendation engine for document selection with conversational clarification of legal concepts. Their work demonstrates a deliberate design orientation toward users without formal legal training, which corresponds closely to this study's Trust/Substitution subscale finding that students perceive AI as particularly useful for those lacking legal expertise.

Pramanik, (2025) introduced an AI-powered Legal Documentation Assistant combining natural language processing with optical character recognition to generate and personalize legal documents while maintaining regulatory compliance. Notably, their evaluation explicitly identified periodic misinterpretation of legal terminology, dependence on input quality, and jurisdictional restrictions as persistent limitations even in a purpose-built legal AI system —

empirical confirmation, from the system-design side, of precisely the risks that this study's Risk Awareness subscale shows students intuitively anticipate.

Nigam, Patnaik, Thomas, Shallum, Ghosh, and Bhattacharya (2025) introduced a large-scale anonymized dataset of private legal documents and a model-agnostic generation framework for structured legal drafting, demonstrating substantial improvements in factual accuracy, coherence, and completeness over fine-tuned baselines when generation is decomposed into a planning stage followed by retrieval-grounded section drafting. Their work illustrates that the technical capability gap motivating student caution is an active area of correction in the research community, though such improvements remain at the research stage rather than being uniformly deployed in the consumer-facing tools students actually use.

Bunda, Aida, and Utami (2025) developed an NLP-based system to assist legal practitioners in drafting legal claims, reporting reductions in drafting time of up to seventy percent alongside consistent detection of ambiguous sentences and legal errors. Their findings on practitioner-side efficiency gains and error-detection support the present study's Trust/Substitution finding that students perceive genuine utility in AI assistance, even as Risk Awareness findings show this trust remains conditional on human review.

Davenport (2025) investigated the application of large language models to lengthy legal contracts through a case study of an agreement between a school district and a municipal government, combining hierarchical text segmentation with chain-of-thought prompting to address context-window limitations. The study found that large language models could summarize and analyze long contracts with accuracy and efficiency comparable to human legal analysts, while explicitly flagging confidentiality, bias, and hallucination risk as unresolved ethical concerns requiring human oversight — a finding directly relevant to the verification failures examined later in this paper.

Arfat, Colella, and Marella (2024) compared legal-document summaries generated by two large language models on Italian court decisions, evaluating output using standard natural language processing metrics alongside readability scoring, and found meaningful performance differences between systems on semantic similarity measures. Their comparative methodology underscores that AI legal-text quality is not uniform across tools, a nuance largely absent from student survey responses that treat "AI" as a single undifferentiated category, and a point worth incorporating into AI literacy curricula directly.

Mik (2026) offered a sharply critical counterpoint to the efficiency-focused literature, arguing that large language models do not understand legal meaning, lack genuine contextual reasoning, and instead generate statistically plausible approximations of contractual language.

The analysis warned that AI-generated contracts may appear superficially coherent while containing inconsistent or unsuitable provisions for a given transaction, cautioning against treating fluency as a proxy for legal soundness. This perspective is a necessary counterweight to more optimistic accounts of AI-assisted drafting and underscores why student-reported risk awareness reflects a defensible professional instinct rather than excessive caution.

Giampieri (2024) empirically tested this concern by prompting two leading AI systems to draft supply contracts under two different national legal systems. The study found that both systems produced near-identical contracts regardless of the governing legal system specified, disregarding jurisdiction-specific requirements and conventions, and concluded that human supervision remains necessary to correct the resulting legal fallacies. This finding provides direct empirical support for the human-review expectation that emerged as the single strongest attitude in this study's survey data (Q10, $M = 4.46$).

Lam, Cheng, and Yeong (2023) examined combinations of traditional and generative AI techniques for contract drafting, proposing practical prompt-engineering approaches alongside privacy-preserving, locally hosted alternatives to commercial chatbots for use in professional settings where client confidentiality is a concern. Their attention to confidentiality in professional AI use anticipates an ethical dimension largely unprobed by the present study's instrument and is recommended as an addition to future iterations of the questionnaire.

Magesh, Surani, Dahl, Suzgun, Manning, and Ho (2024) conducted the first preregistered empirical evaluation of commercial AI-driven legal research tools marketed as reducing or eliminating hallucination. Despite vendor claims of hallucination-free output, the study found that leading proprietary tools still produced hallucinated content in roughly one-sixth to one-third of tested queries, substantially better than general-purpose chatbots but far from the marketed guarantee. This finding is significant for legal business education because it demonstrates that even professionally marketed, retrieval-augmented systems require active human verification — the same conclusion students in the present study's interviews reached independently and without exposure to this literature.

Siino, Falco, Croce, and Rosso (2025) conducted a systematic literature review of transformer-based language models in the legal domain spanning 2017 to 2023, identifying legal document analysis, case prediction, and contract review as dominant application categories and documenting a marked increase in methodological sophistication and linguistic diversity over the review period. Dehghani, Dehghani, Ardebili, and Rahnamayan (2025) similarly surveyed large language models across legal document drafting, case analysis, compliance monitoring, and legal education, concluding that current models carry meaningful

risks of bias and overstated reliability in high-stakes legal contexts. Both surveys establish that the technical literature on AI in law has matured considerably in scope and rigor even as the risk profile they document remains substantively unchanged, reinforcing the urgency of the educational intervention this paper proposes.

Basha, Kalyani, and Sandeep (2024) presented "Lexi," a generative AI tool designed to simplify legal language and improve the readability of legal documents for non-specialist audiences, framing improved accessibility as a primary value proposition of AI-assisted legal drafting. Their emphasis on accessibility for non-experts parallels this study's finding that students particularly value AI's capacity to clarify difficult legal vocabulary, a theme echoed directly in interview participant S6's account of using AI to manage legal English as a non-native speaker.

Pedagogical Challenges and Student Perspectives

Regalia (2024) presented a practitioner's perspective on how generative AI is redefining legal writing practice, outlining how contemporary AI tools are improving both the speed and quality of legal writing while reshaping approaches to research and communication. Regalia noted that many students and educators lack sufficient understanding of these tools, creating a critical knowledge gap that mirrors the moderate, rather than elevated, General AI Awareness levels found among the present study's participants.

Pham and Luong (2025) conducted research on undergraduate Legal English students and their difficulties integrating AI tools into writing practice, identifying overreliance, ethical concerns, and diminished creativity as common problems. Their research supports the argument that students require structured guidance to use AI responsibly, and that without systematic instruction, students may not develop the judgment needed to assess AI-generated legal text accurately — a concern the present study's near-absence of instructor feedback on AI use (Q15, $M = 1.94$) suggests remains largely unaddressed.

Mika (2022) examined AI-powered features in legal research platforms, detailing how such tools can enhance citation accuracy and support writing, but warned that overreliance on software output could lead students to accept inaccurate or incomplete results without verification. This observation is particularly relevant in educational contexts where students may not yet possess the judgment needed to critique AI-generated content effectively.

Ethical and Professional Considerations

Smith (2023) examined the relationship between plagiarism, legal writing, and language models, arguing that the use of AI-generated content bears similarities to established legal practices of reusing templates and boilerplate language. The analysis challenges traditional assumptions about originality in legal writing and questions the ethical consistency of current academic integrity approaches.

Cyphert (2023) reviewed legal concerns about plagiarism and copyright infringement when lawyers use generative AI, noting that boilerplate copying is itself standard legal practice but that disciplinary bodies vary considerably in their interpretation of AI-assisted drafting. Cyphert's analysis suggests that students must develop awareness of broader intellectual property frameworks before using AI tools in professional contexts.

Harasta, Novotná, and Savelka (2024) conducted experimental research measuring legal professionals' and law students' perceptions of documents believed to be authored by AI versus humans. The study found a clear preference for documents perceived as human-authored over those believed AI-generated, even when content quality was held constant, illustrating persistent professional skepticism toward AI authorship that students entering the profession will need to navigate. Notably, the same study found that most participants nonetheless expected automated legal document generation to become standard in the near future — a tension between present skepticism and anticipated adoption that closely parallels the qualified-trust pattern identified in the present study's Trust/Substitution subscale.

Casagran, Martí, Guillén, and Casagran (2026) reviewed the use of large language models in legal text generation among EU-based law firms, with particular attention to gender implications of algorithmic bias in generated legal text, and offered recommendations for ensuring fairness and reliability in professional deployment. Their attention to bias as a distinct ethical dimension, separate from factual accuracy, identifies a gap in the present study's instrument: the questionnaire's Risk Awareness items address factual and ethical error broadly but do not separately probe bias or fairness concerns, a limitation addressed in Section 5.4.

Synthesis

Across this literature, a consistent tension emerges between AI's demonstrated efficiency gains in legal document tasks (Gouri et al., 2025; Davenport, 2025; Bunda et al., 2025; Basha et al., 2024) and persistent, well-documented risks of factual error, jurisdictional mismatch, bias, and professional skepticism (Mik, 2026; Giampieri, 2024; Magesh et al., 2024; Harasta et al., 2024; Pramanik et al., 2025; Casagran et al., 2026). Educational research on this topic

(Pham & Luong, 2025; Mika, 2022; Regalia, 2024) consistently identifies a knowledge and judgment gap among students using these tools, but — prior to the present study — has not empirically tested whether students' own attitudes already anticipate the risks the technical literature documents, nor connected those attitudes to a real-world institutional failure case. This is the gap the present study addresses.

Methodology

This research employed a mixed-methods design combining a structured quantitative questionnaire with semi-structured qualitative interviews to assess undergraduate business students' awareness, perceptions, usage patterns, and views on the educational implications of AI-assisted legal business writing. The study was conducted at a university with an international Business degree program, with the quantitative and qualitative components conducted concurrently with overlapping but not identical participant pools.

Quantitative Component

Participants. Fifty undergraduate business students ($N = 50$) from China participated in the survey. All participants were studying in an English-medium international program, ensuring adequate language proficiency for questionnaire completion.

Instrument. A structured questionnaire was developed based on the literature review and organized into four sections: (1) Awareness of AI capabilities in legal business writing, (2) Perceptions of AI benefits and limitations, (3) Usage patterns of AI tools for legal and business writing tasks, and (4) Implications for academic learning and professional preparation. Items used five-point Likert scales ranging from strongly disagree (1) to strongly agree (5), with a neutral midpoint (3). The full 20-item instrument is reproduced below.

AI in Legal Business Writing Questionnaire

Section 1 — Awareness: (1) I am aware that artificial intelligence can assist in drafting legal business documents. (2) I know that AI tools such as ChatGPT can be used for legal contract writing. (3) I understand the types of legal business documents (e.g., contracts, policies) that can be generated using AI. (4) I have read or heard about the use of AI in legal or professional writing. (5) I can identify differences between general writing tools and those designed for legal document generation.

Section 2 — Perceptions: (6) AI-generated legal documents may include factual or legal errors. (7) Using AI tools for legal business writing reduces the need for human legal expertise.

(8) Relying on AI tools for legal writing may create academic or ethical problems. (9) AI tools make legal writing easier for students who lack formal legal training. (10) AI-generated legal documents are generally useful but require human review.

Section 3 — Usage: (11) I have used AI tools such as ChatGPT or Grammarly to write legal or business-related assignments. (12) I use AI tools to help improve grammar, vocabulary, and structure in legal documents. (13) I rely on AI tools to draft contracts, terms, or other business documents for coursework. (14) I have copied content directly from AI-generated outputs into legal assignments. (15) I have received feedback on my use of AI tools for legal writing from lecturers or peers.

Section 4 — Implications: (16) AI tools should be included in legal or business writing instruction at university. (17) Students need training on ethical and responsible use of AI in writing legal documents. (18) AI tools may help me prepare better for legal writing tasks in the workplace. (19) University rules about AI use in legal writing are clear and easy to follow. (20) Using AI in legal writing helps me understand legal language and structure better.

Theoretical framework. The questionnaire is grounded in an integrated framework drawing from established models of technology acceptance and behavioral intention. The Technology Acceptance Model (Davis, 1989) provides the primary foundation: the Perceptions and Implications sections reflect TAM's core constructs of perceived usefulness and perceived ease of use as determinants of adoption behavior. Rogers' (2003) Diffusion of Innovations Theory frames the Awareness section, treating knowledge and awareness as the critical first stage through which individuals engage with new technologies. The behavioral dimensions captured in the Usage section draw on Ajzen's (1991) Theory of Planned Behavior, which holds that actual behavior is shaped by attitudes, subjective norms, and perceived behavioral control. Finally, the Implications section incorporates principles from digital literacy and academic integrity discourse, following Beetham and Sharpe's (2007) digital literacy framework for higher education.

Data analysis. Data were analyzed using descriptive statistics, one-sample *t*-tests, and reliability analysis (Cronbach's alpha). One-sample *t*-tests compared section and subscale means against a threshold of 3.40, selected to represent agreement meaningfully beyond the scale's neutral midpoint of 3.0, consistent with conventions in Likert-based technology-acceptance research that distinguish neutral response from substantive endorsement. Prior to hypothesis testing, internal consistency of each originally specified section was assessed; sections falling below conventional reliability thresholds ($\alpha < .60$) were decomposed into conceptually coherent subscales via inter-item correlation analysis, with items not loading

coherently onto any subscale reported individually. Statistical significance was evaluated at $\alpha = .05$.

Ethical considerations. Informed consent was obtained from all participants. Participation was voluntary with no academic consequences for non-participation. Data were anonymized to protect participant confidentiality. Ethics approval was obtained from the relevant university research ethics committee prior to data collection.

Qualitative Component

Participants. Ten international undergraduate business students from China (pseudonyms S1–S10) participated in semi-structured interviews exploring awareness of AI-assisted legal writing tools, usage patterns, perceived benefits, concerns, and educational needs.

Analysis. Interview transcripts were analyzed thematically, yielding six recurring themes detailed in Section 4.2.

Results and Discussion

Quantitative Survey Results (N = 50)

Internal consistency analysis of the originally specified four sections revealed that two sections — Awareness and Perceptions — did not meet conventional reliability thresholds as five-item composites ($\alpha = -.154$ and $\alpha = .484$, respectively), indicating that, as administered, these sections captured more than one underlying construct. Inter-item correlation analysis identified coherent subscales within each: a three-item General AI Awareness subscale (Q1–Q3) and two three-item Perceptions subscales, Risk Awareness (Q6, Q8) and Trust/Substitution (Q7, Q9, Q10), all with acceptable-to-good reliability (Table 1). Items not loading coherently onto either subscale (Q4, Q5 in Awareness; Q12, Q15 in Usage) are reported individually. The Usage section's reliability improved substantially when restricted to its three substantive-reliance items (Q11, Q13, Q14, $\alpha = .834$); the Implications section retained acceptable reliability in its original five-item form ($\alpha = .715$) and required no decomposition.

Table 1. Reliability-validated subscales: descriptive statistics and one-sample t-tests against threshold = 3.40

Subscale	Items	M	SD	α	t(49)	p	d
General AI Awareness	Q1, Q2, Q3	3.47	0.91	.873	0.57	.571	0.08
Perceptions – Risk Awareness	Q6, Q8	4.27	1.01	.730	6.11	<.001	0.86

Subscale	Items	M	SD	α	t(49)	p	d
Perceptions – Trust/Substitution	Q7, Q9, Q10	3.84	0.99	.775	3.14	.003	0.44
Usage – Substantive Reliance	Q11, Q13, Q14	2.27	0.93	.834	–8.59	<.001	–1.21
Implications	Q16–Q20	3.42	0.69	.715	0.16	.871	0.02

Standalone items not forming reliable composites: Q4 (M = 3.62, SD = 0.92), Q5 (M = 3.54, SD = 1.13), Q12 (M = 3.46, SD = 1.45), Q15 (M = 1.94, SD = 1.08).

Table 2. Full item-level descriptive and inferential statistics (test value = 3.40)

Item	Content (abbreviated)	M	SD	t(49)	p
Q1	Aware AI can assist drafting legal documents	3.38	0.85	–0.17	.869
Q2	Know ChatGPT-type tools usable for contracts	3.36	1.19	–0.24	.813
Q3	Understand types of AI-generable legal documents	3.68	0.98	2.02	.048
Q4	Have read/heard about AI in legal/professional writing	3.62	0.92	1.68	.098
Q5	Can distinguish general vs. legal-specific AI tools	3.54	1.13	0.88	.385
Q6	AI-generated documents may contain factual/legal errors	4.40	0.90	7.83	<.001
Q7	AI reduces need for human legal expertise	3.32	1.50	–0.38	.709
Q8	Reliance on AI creates academic/ethical problems	4.14	1.32	3.95	<.001
Q9	AI eases legal writing for those without formal training	3.74	0.94	2.55	.014
Q10	AI-generated documents useful but need human review	4.46	1.05	7.11	<.001
Q11	Used AI for legal/business assignments	2.92	0.99	–3.44	.001
Q12	Use AI to improve grammar/structure	3.46	1.45	0.29	.770
Q13	Rely on AI to draft contracts/terms for coursework	1.92	0.97	–10.84	<.001
Q14	Copied AI output directly into assignments	1.98	1.24	–8.12	<.001

Q15	Received feedback on AI use from lecturers/peers	1.94	1.08	−9.59	<.001
Q16	AI should be included in legal/business instruction	3.14	0.93	−1.99	.053
Q17	Students need ethics/responsible-use training	3.80	1.03	2.75	.008
Q18	AI may help prepare for workplace legal writing	3.48	1.11	0.51	.613
Q19	University AI policy is clear and easy to follow	3.34	0.89	−0.47	.637
Q20	AI use improves understanding of legal language/structure	3.32	1.08	−0.53	.602

Narrative summary. Four findings define the quantitative results. First, Risk Awareness is the strongest and most reliable finding in the dataset ($d = 0.86$): students hold a well-formed, internally consistent belief that AI-generated legal text may be factually flawed and that reliance on it raises ethical concerns. Second, Trust/Substitution beliefs are also significantly elevated but more moderately ($d = 0.44$): students view AI as useful, particularly for those without formal legal training, but do not believe it substitutes for human legal expertise (Q7 alone does not cross the threshold). Third, General AI Awareness does not differ from the threshold ($d = 0.08$): students know AI exists and broadly what it can produce, but this knowledge is moderate rather than confidently held, and the related but distinct skill of discriminating legal-specific from general-purpose tools (Q5) remains similarly moderate and statistically separate from general awareness. Fourth, Substantive Reliance in Usage is the most extreme finding in either direction ($d = -1.21$): students strongly and consistently avoid using AI for actual contract or document drafting in coursework, a pattern sharper than an undifferentiated Usage section would suggest, because it isolates high-stakes drafting behavior from the low-stakes grammar/structure support captured separately in Q12 (which does not differ from the threshold). The standalone item Q15 (receiving instructor or peer feedback on AI use, $M = 1.94$) is the lowest score in the dataset outside the Substantive Reliance cluster, indicating that regardless of how or how much students use AI, structured pedagogical engagement with that use is almost entirely absent.

Within Implications, the composite does not differ from the threshold, but this masks a meaningful split: Q17 (need for ethics/responsible-use training specifically) is significantly

elevated, while Q16 (AI should be included in instruction, generically) is not. Students are not asking for more AI exposure in the abstract; they are asking specifically to be taught how to evaluate and use it responsibly. Two further Implications items round out this picture. Q19 (university rules on AI use in legal writing are clear and easy to follow) sits just above the scale midpoint but does not differ significantly from the 3.40 threshold ($M = 3.34$, $p = .637$), indicating that existing institutional policy, where it exists, is not yet registering with students as clear guidance — a gap that sits uncomfortably alongside the strong, specific demand for ethics training in Q17. Q20 (using AI in legal writing helps me understand legal language and structure better) similarly does not differ from the threshold ($M = 3.32$, $p = .602$), suggesting students do not yet experience their own AI use as pedagogically productive in itself; this is consistent with the Trust/Substitution subscale finding that students value AI primarily as a practical aid rather than as a vehicle for deeper learning, and reinforces that any educational benefit of AI exposure is more likely to come from structured instruction built around its use than from unsupervised exposure alone.

Qualitative Interview Results (n = 10)

Six themes emerged from thematic analysis of the interview data, each corroborating and adding explanatory depth to the quantitative findings above.

Theme 1: Moderate awareness of AI capabilities. Most participants demonstrated general understanding of generative AI tools but incomplete knowledge of their limitations, consistent with the moderate, non-elevated General AI Awareness subscale finding. S1 noted, "I know AI can help write contracts or explain legal terms, but I am not sure if the information is always correct." S7 added, "AI is useful for generating ideas, but I don't fully understand how it creates answers."

Theme 2: Low actual usage of AI for legal writing. Despite general awareness, participants reported limited direct use of AI for legal writing tasks specifically, mirroring the strongly depressed Substantive Reliance subscale. S2 explained, "I rarely use AI for legal assignments because I worry about making mistakes." Only three of ten participants reported using AI more than occasionally for legal-related coursework.

Theme 3: Perceived benefits of AI-assisted legal writing. Participants identified efficiency and accessibility benefits, particularly for non-native English speakers. S6 noted that AI "helps me understand legal vocabulary that is difficult because English is not my first language," while S4 valued AI's capacity to "save time when creating first drafts." These comments align with the significantly elevated Trust/Substitution subscale, particularly Q9,

and resonate directly with the accessibility-oriented design goals described by Atharva-Mahajan et al. (2025) and Basha et al. (2024) in their respective AI legal-drafting tools.

Theme 4: Concerns about accuracy and reliability. All ten participants expressed concern about the trustworthiness of AI-generated legal information, directly corroborating the Risk Awareness subscale, the strongest quantitative finding. S5 observed, "Sometimes AI sounds confident even when the answer may not be correct," and S10 stated, "I would not submit legal work generated entirely by AI without checking it carefully." Students frequently referenced risks of misinformation, fabricated citations, and outdated legal information — concerns empirically validated by Magesh et al.'s (2024) finding that even commercial legal-AI tools hallucinate in a substantial minority of queries, and by Pramanik et al.'s (2025) documented terminology-misinterpretation limitations in purpose-built legal AI systems.

Theme 5: Ethical and professional concerns. Participants recognized risks of overreliance, accountability gaps, and professional consequences. S8 stated plainly, "If lawyers use AI without reviewing the output, it could affect clients negatively" — a comment that, in retrospect, directly anticipates the institutional dynamics of the West Midlands Police case and echoes the confidentiality and accountability concerns raised by Lam et al. (2023) regarding professional AI deployment.

Theme 6: Need for AI literacy education. All participants supported structured AI training in business education, explaining the significant elevation of Q17 against the non-significant Q16. S2 distinguished these directly: "Universities should teach us how to use AI properly, not just tell us not to use it." S9 added that students should learn "both the advantages and risks before using AI in professional situations."

Summary. The interview data converge on a single explanatory mechanism for the quantitative pattern: students avoid high-stakes AI use not from disinterest or lack of access, but from a reasoned, well-articulated risk calculation that current curricula do nothing to formally support, train, or verify. Students' instincts are sound; their training is absent.

Synthesis of Findings

Three results, read together, define this study's central contribution. Students hold strong, well-formed Risk Awareness ($d = 0.86$) that substantially exceeds their General AI Awareness ($d = 0.08$) — they are more confident that AI can fail than they are confident in their own understanding of how or why it works. This caution translates behaviorally into the strongest finding in the dataset: near-total avoidance of AI for substantive legal drafting ($d = -1.21$), even as low-stakes grammar and structural support (Q12) proceeds at moderate,

undifferentiated rates. And this entire pattern unfolds with almost no institutional scaffolding: Q15, the item asking whether students have received any feedback on their AI use from lecturers or peers, registers the second-lowest mean in the entire 20-item instrument ($M = 1.94$), trailing only the substantive-reliance item it is meant to govern. Students are, in effect, self-regulating a high-stakes technology with no formal training and no feedback loop, and so far, their self-regulation has erred toward caution. The open question this study raises, and that the West Midlands Police case answers in the negative, is how long that caution can be relied upon to hold without formal reinforcement once students enter professional environments with deadline pressure, institutional incentives toward efficiency, and far higher stakes than a graded assignment.

The West Midlands Police Case: A Critical Examination

In January 2026, West Midlands Police faced severe institutional crisis following revelations that an AI tool had generated fabricated evidence used in operational decision-making. The incident centered on decisions regarding security measures for a football match between Maccabi Tel Aviv and Aston Villa. According to BBC News (2026), Chief Constable Craig Guildford faced calls for resignation after an interim report identified multiple failures in decision-making processes.

The AI tool produced incorrect information referencing a match between Maccabi Tel Aviv and West Ham United that never occurred. This fabricated evidence was incorporated into decision-making without adequate verification. Initially, Chief Constable Guildford denied that AI was responsible for the erroneous information, but subsequently admitted before a parliamentary statement that an AI tool had indeed provided the false evidence (BBC News, 2026).

Institutional consequences. Home Secretary Shabana Mahmood informed Parliament that she had lost confidence in Chief Constable Guildford, describing the interim inspector's report as damning. The report identified confirmation bias within decision-making processes and concluded that the force had overestimated threats (BBC News, 2026). Local political leaders called for accountability, with Birmingham Council Leader John Cotton stating that Guildford should resign and West Midlands Mayor Richard Parker describing the position as untenable. West Midlands Police issued public apologies acknowledging errors and promising to rebuild confidence, emphasizing that failures were not committed with intent of deliberate distortion or discrimination (BBC News, 2026). However, this assurance did not mitigate institutional damage or prevent calls for leadership changes.

Critical failure points. The incident reveals four failure points directly relevant to this study's findings. First, a fundamental verification failure occurred when AI-generated information was accepted without adequate fact-checking; basic verification would have revealed that no match between the named teams had occurred. This is precisely the failure mode that students in this study's interviews — none of whom had any institutional training on the subject — already articulated as a risk in the abstract (Theme 4; Risk Awareness subscale). Second, the case illustrates confirmation bias, where AI output aligning with existing assumptions receives reduced critical scrutiny; this is a more sophisticated failure mode than simple inattention, and one not directly captured by the present study's instrument, representing a concrete addition for future curriculum design and questionnaire revision (Section 5.4). Third, accountability problems emerged, with initial denial of AI involvement suggesting organizational reluctance to acknowledge reliance on automated systems — an institutional analogue to the academic-integrity concerns raised by Smith (2023) and Cyphert (2023) regarding disclosure of AI assistance. Fourth, inadequate organizational protocols failed to prevent fabricated evidence from influencing high-stakes decisions affecting public safety and civil liberties, the clearest illustration available of what happens when an organization, unlike the risk-aware students surveyed here, lacks even the informal caution this study finds among undergraduates.

Why Student Attitudes Matter for Professional Practice

The juxtaposition is instructive precisely because it runs in the direction one might not expect. The students in this study, entirely without formal AI literacy training, articulated and behaviorally enacted exactly the verification discipline that a trained, institutionally resourced police force failed to apply. This suggests that the deficit current curricula need to address is not one of attitude formation — students already arrive with workable instincts, plausibly shaped by general digital-literacy exposure and media coverage of AI failures (Theme 1; Regalia, 2024) — but of converting those instincts into reliable, trained, institutionally reinforced practice that survives contact with deadline pressure, authority deference, and the efficiency incentives that the West Midlands case shows can override individual caution within an organization. Mik's (2026) and Giampieri's (2024) technical findings on AI's inability to reliably reproduce jurisdiction-specific or transaction-specific legal reasoning, and Magesh et al.'s (2024) documentation of persistent hallucination even in commercial legal-AI products, together supply the evidentiary basis for treating this caution as warranted rather than

excessive, and for building curricula around specific, named failure modes rather than generic admonitions to "be careful with AI."

Limitations

This study has several limitations. The quantitative sample ($N = 50$) and qualitative sample ($n = 10$) are both drawn from a single institution and a single national cohort, limiting generalizability to business education contexts elsewhere. The questionnaire, while reliability-validated post hoc into coherent subscales, was not validated prior to administration through pilot testing or exploratory factor analysis, and future iterations should incorporate this step, along with additional items addressing algorithmic bias and confidentiality (Casagran et al., 2026; Lam et al., 2023), neither of which the current instrument probes directly. The cross-sectional design captures attitudes at a single point in time and cannot establish whether risk awareness changes with exposure to coursework, internships, or direct experience of AI error. Finally, the connection drawn between student survey data and the West Midlands Police case is illustrative and interpretive rather than causal; the case is presented as a real-world analogue that sharpens the stakes of the educational argument, not as a data point statistically linked to the student sample.

Implications for Curriculum Design

The findings support a four-component AI literacy curriculum corresponding to the conceptual framework outlined in Section 1.5. Technical competency instruction should move beyond declarative awareness ("AI can draft contracts") toward functional understanding of how specific tools generate text, including the architectural basis for errors described by Hitesh and Pallavi (2025) and Nigam et al. (2025), so that General Awareness scores reflect operational understanding rather than passive familiarity. Critical evaluation training should build directly on, rather than presume the absence of, students' existing Risk Awareness, providing structured verification protocols, named examples of documented failures such as the hallucination rates reported by Magesh et al. (2024) and the jurisdictional fallacies documented by Giampieri (2024), and the West Midlands Police case itself as a teaching case demonstrating consequences at institutional scale. Ethical reasoning instruction should respond directly to the specific demand expressed in Q17 and Theme 6, addressing disclosure norms, academic integrity boundaries consistent with evolving interpretations discussed by Smith (2023) and Cyphert (2023), and bias considerations raised by Casagran et al. (2026). Finally, legal understanding instruction should close the jurisdictional and regulatory gap that AI tools

themselves cannot reliably close, per Giampieri's (2024) and Mik's (2026) findings, ensuring students understand that fluent AI output is not evidence of legal soundness. This conclusion is reinforced by two further findings that have not yet been addressed. The non-significant result for Q19 indicates that institutional AI-use policy, to the extent it currently exists, is not perceived by students as clear, suggesting that policy clarity itself should be treated as a curriculum deliverable rather than an administrative afterthought; a policy document is only as useful as students' ability to locate, understand, and act on it. Similarly, the non-significant result for Q20 indicates that unsupervised AI exposure alone does not appear to deepen students' understanding of legal language or structure, which argues against curricular approaches that merely permit or encourage AI use without building structured reflection or critique into the assignment itself; the pedagogical value of AI exposure in this domain appears to be conditional on deliberate instructional design, not incidental to use. Across all four components, the near-zero score on Q15 indicates the most urgent and lowest-cost intervention available to institutions: simply establishing a feedback mechanism, of any kind, between instructors and students regarding AI use in legal writing assignments, since currently none meaningfully exists.

Conclusion and Suggestions

This study set out to examine how undergraduate business students understand, evaluate, and use artificial intelligence in legal business writing, and to situate those findings against a real-world case of professional AI failure. The results show a more precise and, in some respects, more encouraging picture than the literature's general framing of student AI use as uncritical or unregulated would suggest. Students in this sample exhibit strong, internally consistent risk awareness and behaviorally enact that awareness by avoiding AI for substantive legal drafting, reserving its use for lower-stakes language support. What they conspicuously lack is not caution but structure: formal technical training, explicit verification protocols, and any meaningful feedback from instructors on how they are currently using these tools. The West Midlands Police case demonstrates, at institutional scale, precisely what happens when this structure is absent even among trained professionals operating within established organizational protocols — fabricated AI output, accepted without verification, that produced confirmation bias, institutional denial, and ultimately the loss of public confidence in senior leadership. The lesson for business education is not that students need to be persuaded AI is risky; the survey data show they already believe this. The lesson is that this belief must be

matched with structured, institutionally supported training before students carry an informal, unreinforced version of this caution into professional environments where the consequences of a single unverified AI output can extend far beyond a single grade.

Several avenues for future research emerge from the findings of this study. First, the present research was limited to undergraduate business students within a single institutional context. Future studies could examine whether similar patterns of AI awareness and usage exist across different universities, disciplines, and cultural settings. Comparative research involving law, accounting, engineering, or information systems students may reveal whether risk perceptions and verification practices vary according to disciplinary training and professional expectations.

Second, while this study identified a strong awareness of AI-related risks, it relied primarily on self-reported behaviors. Future research could incorporate observational methods, experimental designs, or analysis of student-produced assignments to determine whether reported verification practices align with actual behavior when students use AI tools for academic work.

Third, longitudinal studies would be valuable in examining how students' AI competencies evolve over time. Tracking students from university into professional employment could provide insight into whether informal caution develops into systematic verification practices or whether workplace pressures increase reliance on unverified AI outputs.

Fourth, future research should evaluate the effectiveness of specific educational interventions. Experimental studies comparing different forms of AI literacy training, verification frameworks, and instructor feedback mechanisms could identify the most effective approaches for promoting responsible AI use in legal and business writing contexts.

Finally, the inclusion of the West Midlands Police case highlights the importance of examining AI governance beyond educational settings. Future studies could investigate how professionals in legal, business, and public-sector organizations verify AI-generated information, identify barriers to effective oversight, and assess how institutional policies influence trust, accountability, and decision-making. Such research would help bridge the gap between student AI use and the broader organizational challenges associated with integrating generative AI into professional practice.

References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211.
<https://www.sciencedirect.com/science/article/pii/074959789190020T>
- Alarie, B., Niblett, A., & Yoon, A. H. (2018). How artificial intelligence will affect the practice of law. *University of Toronto Law Journal*, 68(supplement 1), 106–124.
<https://utppublishing.com/doi/abs/10.3138/utlj.2017-0052>
- Arfat, Y., Colella, M., & Mareello, E. (2024). Legal text analysis using large language models. In *Proceedings* (pp. 258–268). https://doi.org/10.1007/978-3-031-70242-6_25
- Atharva-Mahajan, A., Bhor, S., Patil, R., Rane, S., & Reshim, P. (2025). Legal chatbot and document generator using ReFlaPsy. *World Journal of Advanced Research and Reviews*.
<https://doi.org/10.30574/wjarr.2025.26.1.1370>
- Basha, T. Y., Kalyani, B., & Sandeep, Y. (2024). Generative artificial intelligence in legal drafting. In *2024 International Conference on Computational Intelligence for Green and Sustainable Technologies (ICCIGST)* (pp. 1–6).
<https://doi.org/10.1109/iccigst60741.2024.10717541>
- BBC News. (2026, January 15). West Midlands Police chief faces calls to quit over Maccabi Tel Aviv ban. <https://www.bbc.com/news/live/c394zlr8e12t>
- Beetham, H., & Sharpe, R. (2007). *Rethinking pedagogy for a digital age: Designing and delivering e-learning*. Routledge.
https://www.academia.edu/download/110680527/Learning_and_e-learning.pdf
- Bunda, R. H., Aida, W., & Utami, U. (2025). Digital reform in legal complaint drafting: Construction of an AI-based planning system to reduce the risk of obscure interim decisions. *Awang Long Law Review*. <https://doi.org/10.56301/awl.v8i1.1766>
- Casagran, C. B., Martí, L. B., Guillén, S. R., & Casagran, E. B. (2026). Navigating the AI legal landscape: Gender implications of large language models in legal text generation. *IDP. Revista de Internet, Derecho y Política*. <https://doi.org/10.7238/idp.v0i44.432721>

Cyphert, A. B. (2023). Generative AI, plagiarism, and copyright infringement in legal documents. *Minnesota Journal of Law, Science & Technology*, 25, 49. <https://scholarship.law.umn.edu/cgi/viewcontent.cgi?article=1564&context=mjlst>

Davenport, M. J. (2025). Enhancing legal document analysis with large language models: A structured approach to accuracy, context preservation, and risk mitigation. *Open Journal of Modern Linguistics*, 15(2), 232–280. <https://doi.org/10.4236/ojml.2025.152016>

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://misq.umn.edu/misq/article-abstract/13/3/319/191>

Dehghani, F., Dehghani, R., Ardebili, Y. N., & Rahnamayan, S. (2025). Large language models in legal systems: A survey. *Humanities and Social Sciences Communications*, 12. <https://doi.org/10.1057/s41599-025-05924-3>

Giamperri, P. (2024). AI-powered contracts: A critical analysis. *International Journal for the Semiotics of Law*, 38, 403–420. <https://doi.org/10.1007/s11196-024-10137-z>

Gohil, N. (2026). West Midlands police chief apologises after AI error used to justify Maccabi Tel Aviv ban. *The Guardian*. <https://www.theguardian.com/uk-news/2026/jan/14/west-midlands-police-chief-apologises-ai-error-maccabi-tel-aviv-ban>

Gouri, H., Jindal, P., Gouri, R., & Gouri, V. (2025). AI-generated legal documents: Challenges and opportunities for corporate law firms. *Exploration of AI in Contemporary Legal Systems*, 73–84. <https://www.igi-global.com/chapter/ai-generated-legal-documents/365944>

Harasta, J., Novotná, T., & Savelka, J. (2024). It cannot be right if it was written by AI: On lawyers' preferences of documents perceived as authored by an LLM vs a human. *Artificial Intelligence and Law*, 1–38. <https://www.muni.cz/en/research/publications/2417778>

Hitesh, D., & Pallavi, D. (2025). AI-powered legal documentation system. *International Journal of Scientific Research in Engineering and Management*. <https://doi.org/10.55041/ijssrem47956>

- Lam, K.-Y., Cheng, V. C. W., & Yeong, Z. K. (2023). Applying large language models for enhancing contract drafting. In *Proceedings* (pp. 70–80). <https://ceur-ws.org/Vol-3423/paper7.pdf>
- Magesh, V., Surani, F., Dahl, M., Suzgun, M., Manning, C. D., & Ho, D. E. (2024). Hallucination-free? Assessing the reliability of leading AI legal research tools. *arXiv*. <https://doi.org/10.48550/arxiv.2405.20362>
- Mik, E. (2026). Contractual deepfakes: Can large language models generate contracts? *arXiv*. <https://doi.org/10.48550/arxiv.2602.09384>
- Mika, K. (2022). Friend or foe? Lexis artificial intelligence (AI) in legal writing. *Proceedings: Online Journal of Legal Writing Presentations*, 3(1), 24. https://engagedscholarship.csuohio.edu/fac_articles/1261/
- Nigam, S., Patnaik, B. D., Thomas, A. V., Shallum, N., Ghosh, K., & Bhattacharya, A. (2025). Structured legal document generation in India: A model-agnostic wrapper approach with VidhikDastaavej. *arXiv*. <https://doi.org/10.48550/arxiv.2504.03486>
- Pham, T. T. D., & Luong, M. H. (2025). Students' challenges in employing AI tools in legal writing. *International Journal of TESOL & Education*, 5(2), 75–86. <https://i-jte.phamho.com/index.php/journal/article/view/526>
- Pramanik, S., Sahana Reddy R, Deepika R. (2025). Intelligent legal documentation: Leveraging AI for precision and productivity. In *2025 2nd International Conference on New Frontiers in Communication, Automation, Management and Security (ICCAMS)* (pp. 1–6). <https://doi.org/10.1109/iccams65118.2025.11233958>
- Regalia, J. (2024). From briefs to bytes: How generative AI is transforming legal writing and practice. *Tulsa Law Review*, 59, 193. <https://digitalcommons.law.utulsa.edu/cgi/viewcontent.cgi?article=3322&context=tlr>
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). Free Press. <https://www.scirp.org/reference/referencespapers?referenceid=3275637>

Siino, M., Falco, M., Croce, D., & Rosso, P. (2025). Exploring LLMs applications in law: A literature review on current legal NLP approaches. *IEEE Access*, 13, 18253–18276. <https://doi.org/10.1109/access.2025.3533217>

Smith, M. L. (2023). Language models, plagiarism, and legal writing. *University of New Hampshire Law Review*, 22, 361. https://scholars.unh.edu/unh_lr/vol22/iss2/9/

Stephenson, M. (2026). How AI destroys policing institutions. *Policing Insights*. <https://policinginsight.com/feature/analysis/how-ai-destroys-policing-institutions/>

Quantifying the Impact of Digital Transformation on Enterprise Development: Evidence from Chinese Listed Companies

Li Jiashuo¹ Nanyang Normal University, School of Economics and Management, Nanyang City, Henan Province, 473000,

Wang Chuanfei¹ Nanyang Normal University, School of Economics and Management, Nanyang City, Henan Province, 473000,

Xu Jinlong² Rajamangala University of Technology Krungthep, International College, Bangkok, Thailand, 10120,

Ma Zihan³; Nanyang Normal University, School of Economics and Management, Nanyang City, Henan Province, 473000,

Lei Jiaxin⁴ Nanyang Normal University, School of Economics and Management, Nanyang City, Henan Province, 473000,

*Alan Robert White⁵ Rajamangala University of Technology Krungthep, International College, Bangkok, Thailand, 10120.

* Corresponding author. E-mail address: alan.w@mail.rmuth.ac.th

Received: March 16, 2026; Revised: April 25, 2026; Accepted: April 30, 2026

Abstract

Digital transformation has become crucial for Chinese enterprises to optimize operating models, expand market share, and improve management efficiency. However, enterprises face significant challenges including slow technology updates, talent shortages, and incomplete data integration. Through data analysis of A-share listed companies, this paper examines digital transformation's contributions to comprehensive enterprise development, exploring core implementation problems and their causes. Based on China's macroeconomic environment and policy requirements, the research identifies specific implementation paths for optimizing digital transformation. Findings show that formulating sound corporate strategies, strengthening technology infrastructure, and recruiting data integration talent are key paths for Chinese enterprises to enhance management and operational efficiency through digital transformation.

Keywords: Digital Transformation, Enterprise Management Efficiency, Data Integration

Introduction

With the progress of the times and the rapid development of network technology, the global economic development is moving towards an unprecedented digital age. Digital transformation is not only the result of scientific and technological progress and economic development, but also a necessary strategic measure for enterprises to face the current market competition and promote their own development. At the enterprise level, digital transformation means efficiently integrating traditional enterprise management models with the latest digital

technologies, optimizing resource combinations, improving enterprise comprehensive management and operational efficiency, and promoting the intelligence and efficiency of business processing processes, thereby enhancing the market competitiveness of enterprises.

However, taking light industrial enterprises as an example, some enterprises are faced with the following problems in the process of fully implementing digital transformation: cumbersome management processes, unclear division of responsibilities, low data integration efficiency, lack of scientific and technological talents, high quality "information barriers", difficulty in obtaining quality information, incomplete quality management (such as incomplete supply chain, and incomplete information), inaccurate management information, and slow discovery, identification and elimination of quality problems, which seriously restrict the improvement of enterprise product quality management level^{Error! Reference source not found.}. Such problems will greatly affect the efficiency and depth of enterprises in implementing digital transformation. Therefore, how to overcome the development bottlenecks brought about by such problems in the digital transformation of enterprises has become an important issue that enterprises need to solve urgently. This article explores the specific contributions of digital transformation to enterprise management efficiency and comprehensive development. Combining data analysis and case studies, it analyzes the bottlenecks and causes faced by enterprises in implementing digital transformation and proposes targeted implementation paths.

Despite digital transformation's recognized importance for enterprise competitiveness, organizations face significant implementation challenges including slow technology adoption, insufficient specialized talent, incomplete data integration, cumbersome management processes, and inefficient information flow. Light industrial enterprises particularly struggle with quality management issues from fragmented systems and delayed problem identification. While existing literature establishes positive relationships between digital transformation and performance, critical gaps remain in understanding specific quantitative contributions across multiple dimensions—financial performance, innovation capability, scale strength, and digital empowerment—and in identifying evidence-based implementation pathways addressing organizational bottlenecks. The relative importance of organizational factors like financial resources, geographic location, and strategic approaches requires empirical clarification for managerial and policy decision-making.

This research contributes theoretically by empirically quantifying digital transformation's impact through a multi-dimensional index approach. Integrating the Digital Transformation Index (DTI) and Enterprise Comprehensive Development Index (CDI) within an OLS regression framework advances measurement methodologies and extends existing theoretical frameworks by demonstrating transformation effect magnitudes across organizational contexts. Practically, the quantified relationship ($\beta = 0.5345$, $p < 0.01$) provides concrete evidence justifying digital investments. The identification of registered capital as significant (coefficient = 0.1989, $p < 0.01$) informs financial planning, while geographic neutrality findings suggest less-developed regions can achieve comparable benefits. The three implementation pathways identified provide actionable road maps for organizations at different digital maturity stages and support policymakers in developing targeted support mechanisms.

Research Objectives

2.1 To quantify digital transformation's contribution to comprehensive enterprise development across multiple dimensions.

2.2 To identify and analyze implementation barriers including technology constraints, talent shortages, and organizational impediments.

2.3 To develop evidence-based implementation pathways for optimizing transformation processes.

2.4 To assess moderating effects of enterprise size and geographic location

2.5 To provide comparative insights across different enterprise contexts

2.6 To bridge theory and practice by connecting empirical findings with theoretical frameworks and translating insights into managerial and policy guidance

Literature Review

Digital transformation is the process where enterprises use technologies like big data, blockchain, and AI to reshape business models, optimize operations, improve efficiency, enhance user experience, and create value. Academically, this occurs at four levels: First, technical—adopting IT systems (ERP, CRM, intelligent production) to optimize processes and boost efficiency; second, business process—using digital tools to improve supply chain, design, sales, and customer service; third, organizational—restructuring the organization and digitizing decision-making to enhance overall effectiveness; fourth, strategic—leveraging technology to create new business models and ecosystems that drive operational transformation. Digital transformation goes beyond merely adopting technology; it uses digital tools to drive comprehensive enterprise innovation and upgrading.

The phenomenon of Enterprise Digital Transformation (EDT) has garnered substantial scholarly and practitioner interest in recent years. According to Ou and Tian (2025), EDT research requires systematic examination through organizational and social theory frameworks to identify critical advancement opportunities in this domain. Their work emphasizes the importance of understanding transformation drivers, implementation practices, and performance outcomes, while highlighting gaps that warrant further investigation. This comprehensive approach to EDT research establishes a foundation for understanding how digital initiatives contribute to holistic organizational development.

The evolutionary trajectory of digital transformation research reveals distinct developmental stages that inform current implementation approaches. Wang et al. (2025a) employed main path analysis to examine three decades of DT scholarship, analyzing 1,790 academic articles to identify the field's intellectual progression. Their findings demonstrate three distinct phases—engagement, enablement, and enhancement—each representing conceptual shifts in how organizations approach digital change. Furthermore, they identified five critical research frontiers: reimagining digital innovation capabilities, pathways for value generation through DT, integration of digital initiatives with business operations, definitional boundaries of the DT field, and leadership in digital contexts. These insights provide organizations with frameworks for anticipating technological evolution and strategically aligning transformation initiatives with comprehensive development objectives.

Sector-specific analyses reveal how digital transformation drives core business performance and sustainable development. Yu et al. (2024) investigated energy sector digitalization as a strategic mechanism for achieving sustainability goals, analyzing A-share listed companies from 2010 to 2021. Their research demonstrates that digitalization substantially enhances core business performance while exhibiting temporal variations. Notably, they found that digital initiatives improve innovation inputs and outputs, thereby strengthening operational efficiency through breakthrough innovations. However, their identification of a nonlinear threshold effect suggests that transformation benefits plateau beyond certain digitalization levels. This finding underscores the importance of calibrated digital investment strategies that support comprehensive enterprise development without diminishing returns.

The relationship between digital transformation and high-quality enterprise development has been systematically validated through meta-analytic research. Liang and Tian (2024) synthesized 40 empirical studies published between 2010 and 2022, employing the Resource-Based View framework to examine impact mechanisms. Their analysis confirmed that digital transformation significantly enhances enterprise development quality through three primary channels: innovation-related factors, operational performance metrics, and capital market outcomes. Importantly, these effects remained statistically significant across various organizational contexts and heterogeneity levels, reinforcing digital transformation's central role in fostering comprehensive organizational advancement and providing evidence-based guidance for strategic decision-making.

The strategic configurations of digital transformation initiatives significantly influence innovation outcomes in established organizations. Soto et al. (2023) utilized fuzzy-set Qualitative Comparative Analysis across 17 case studies to identify successful and unsuccessful digital service innovation patterns. Their research revealed that C-level executive involvement constitutes a necessary condition for successful innovation, while strategic partnership approaches vary based on competitive positioning and disruption threats. Organizations facing imminent digital disruption benefit from collaborative strategies, whereas those with competitive advantages may pursue independent development approaches. These findings illuminate the strategic pathways through which digital transformation contributes to comprehensive enterprise development through service innovation.

For micro, small, and medium-sized enterprises (MSMEs), digital transformation pathways exhibit distinctive patterns shaped by organizational characteristics and contextual factors. Marolt et al. (2024) employed a mixed-methods approach combining interviews with 66 MSME survey responses to identify transformation inhibitors and accelerators. Their research uncovered three distinct transformation trajectories—necessary, experimental, and committed—each reflecting unique combinations of facilitating and constraining factors. This differentiation suggests that comprehensive enterprise development through digitalization requires tailored approaches accounting for organizational size, resource availability, and strategic orientation, rather than uniform implementation strategies.

Sustainable digital transformation represents a critical dimension of comprehensive enterprise development for MSMEs. Martínez-Peláez (2023) conducted a systematic review of 59 publications from 2019 to 2023, identifying organizational capabilities and stakeholder roles essential for sustainable transformation initiatives. The research emphasizes that owners and senior managers must cultivate organizational cultures supporting sustainability-focused

decisions as a foundational step. Additionally, stakeholder engagement emerges as crucial for driving innovation and competitiveness, while big data technologies offer transformative potential for analytical capabilities and decision-making processes. This holistic perspective integrates sustainability considerations into digital transformation's contribution to comprehensive development.

The Technology-Organization-Environment (TOE) framework provides an analytical structure for understanding digital transformation adoption determinants in SMEs. Hoang (2024) examined DT adoption factors among SMEs in Danang, Vietnam, revealing that technological capabilities (cybersecurity and IT integration), environmental elements (client relationships and partnerships), and organizational factors (management support and governance) significantly influence adoption decisions. Notably, technological factors mediate relationships between organizational and environmental variables, suggesting that technical infrastructure development serves as a critical pathway through which other factors influence transformation success. This integrative perspective demonstrates the multifaceted nature of digital transformation's contribution to comprehensive enterprise development.

Digital transformation's role in fostering comprehensive capabilities and growth demonstrates unique dynamics. Kobusingye et al. (2025) investigated 634 SMEs through the lens of dynamic capabilities theory, examining how digital initiatives enhance innovation, market expansion, and organizational growth amid technological turbulence. Their findings confirmed that digital transformation positively influences all three capability dimensions, with innovation and market expansion partially mediating the transformation-growth relationship. However, technological volatility weakens these indirect effects, suggesting that resource-constrained environments present distinct challenges requiring strategic alignment of digital initiatives with capability development and policy support mechanisms.

The comprehensive impact of digital transformation on SMEs and venture companies encompasses multiple dimensions of organizational performance and regional innovation dynamics. Lee (2024) examined digital transformation effects across various organizational contexts, distinguishing between the digital economy's broad scope and the digital industry's technological focus. Through case study analysis of digital innovation clusters, the research demonstrated that patent registrations and R&D investments positively influence financial performance, while innovation certifications may exhibit delayed positive effects following initial negative impacts. These findings suggest that digital transformation's contribution to comprehensive enterprise development manifests through multiple mechanisms, including intellectual property development, research investment, and participation in innovation ecosystems, with temporal variations in outcome realization.

Collectively, this body of literature demonstrates that digital transformation contributes to comprehensive enterprise development through multiple, interconnected pathways including innovation enhancement, operational efficiency improvement, market expansion, sustainability integration, and strategic capability development. The research further reveals that transformation success depends on contextual factors including organizational size, industry sector, geographical location, resource availability, and strategic configuration, necessitating tailored implementation approaches rather than standardized solutions.

This research integrates three complementary theoretical perspectives to examine digital transformation's impact on comprehensive enterprise development. The Resource-Based View

(Barney, 1991) posits that competitive advantage stems from valuable, rare, inimitable, and non-substitutable resources. In digital transformation, RBV explains how enterprises leverage digital capabilities as strategic resources, though strategic deployment—not resource availability alone—determines transformation success. The TOE framework (Tornatzky & Fleischer, 1990) examines technology adoption through technological, organizational, and environmental contexts. This study employs TOE to analyze how organizational factors (registered capital, management capabilities) and environmental factors (geographic location) influence digital transformation adoption and enterprise development. Dynamic Capabilities Theory (Teece, Pisano, & Shuen, 1997) emphasizes organizations' ability to integrate, build, and reconfigure competencies amid rapid change. Digital transformation represents a dynamic capability enabling enterprises to sense opportunities, seize them through strategic investments, and transform processes, contributing to innovation capability, operational efficiency, and market competitiveness. These perspectives converge to form an integrated framework predicting that digital transformation significantly enhances comprehensive enterprise development, with effects moderated by organizational resources and contextual factors.

Methodology

This paper refers to the data acquisition and screening methods of Geng Xuejiao, Wang Huiyan, Duan Qiongjie, (Geng, 2025; Wang & Duan, 2025), selects the data of some A-share listed companies in 2024 as the research sample, and performs the following processing on the data of listed companies in 2024: screens out ST (special treatment, special treatment) data, screens out financial securities companies data, screens out corporate data with missing observation variables, and finally extracts a total of 100 observation sample values. The data required for this research are all from the CSMAR.

1. Explained Variable (Dependent Variable Y): The explained variable in this study is the Enterprise Comprehensive Development Index (CDI). A quantitative index analysis is conducted based on four indicator dimensions: financial performance, innovation capability, scale strength, and digital empowerment. The CDI is derived through a weighted summation method.

2. Core Explanatory Variable (Independent Variable X): In this study, the core explanatory variable is the Digital Transformation Index (DTI), a key indicator measuring a company's overall investment and application in the digital field. This article conducts a quantitative index analysis based on the three indicator dimensions of technology application breadth, digital investment, and transformation effect support. The DTI is derived through a standardized weighted summation method.

3. Control Variable Z (To Prevent Confounding Factors): In this study, the company's registered asset size and the company's location are selected as control variables Z to eliminate the influence of these factors on the explained variable, thereby ensuring more accurate measurement results.

The variable quantification method is shown in Table 1. This study combines the core explanatory variables (independent variable X) and the control variable Z to construct the following OLS basic regression model:

$$Y_i = \alpha + \beta X_i + \gamma Z_i + \epsilon_i \quad (I)$$

(Where: α is the constant term, i.e., the baseline value of the enterprise development level when all independent variables are 0; Y_i is the enterprise comprehensive development index; X_i is the digital transformation index; Z_i is the control variable; β is the contribution/core coefficient of digital transformation to the enterprise's comprehensive development; γ is the coefficient vector of the control variables, reflecting the impact of other factors; ϵ is the residual, i.e., the difference between each enterprise's actual Y and the regression predicted value.)

Table 1 Variable quantification methods.

Variable type	Variable name	Variable quantification method
The core explanatory variable	The Digital Transformation Index	Collects indicators such as enterprise information system applications, big data/cloud computing/IOT usage, and the proportion of online sales/digital marketing. Each indicator is standardized (Z-score or Min-Max), then weighted using entropy or principal component analysis to create a composite digital transformation index.
The explained variable	The Enterprise Comprehensive Development Index	Collects multi-dimensional enterprise indicators: financial performance (revenue growth rate, profit margin), innovation capability (ratio of R&D personnel/R&D expenditure/R&D investment), scale and strength (registered assets), and digital empowerment. Each indicator is standardized (Z-score or Min-Max), then weighted summed using entropy or principal component analysis to create a composite index.
Control variable	Enterprise size	Registered assets, directly collected and then standardized (Z-score or Min-Max)
	Industry category	Enterprise registration information, coded as a dummy variable (e.g., Manufacturing = 1, Other = 2)
	Region	Eastern China, coded as a dummy variable (e.g., Eastern China = 1, Other = 2)

Data source: All variable data are from the CSMAR, government portals, and corporate websites.

The data required for this research were standardized using the Min-Max standardization model:

$$X' = \frac{X - X_{\text{Min}}}{X_{\text{Max}} - X_{\text{Min}}} \quad (II)$$

After standardization, the data were weighted using the equal-weight method. The specific allocation rules are as follows: The core explanatory variable (DTI) consists of three components: 1. Breadth of Technology Application (weighted 60 points), including digital technology application (weighted 100 points); 2. Digital Investment (weighted 25 points), including the proportion of R&D personnel (30 points), the proportion of R&D investment

(weighted 40 points), and the proportion of R&D investment amount (weighted 30 points); 3. Transformation Effect Support (weighted 15 points), including net profit growth rate (weighted 60 points) and operating income growth rate (weighted 40 points). The explained variable (CDI) includes four parts: the first is the financial performance part (weighted 35 points), including the net profit growth rate (weighted 50 points) and the operating income growth rate (weighted 50 points); the second is the R&D innovation part (weighted 30 points), including the proportion of R&D personnel (30 points), the proportion of R&D investment (weighted 40 points), and the proportion of R&D investment amount (weighted 30 points); the third is the scale strength part (weighted 15 points), including the registered capital (weighted 100 points); and the fourth is the digital empowerment part (weighted 20 points), including the application of digital technology (weighted 100 points).

Results and Discussion

Table 2 and Tables 3-7 show the results of the visual regression analysis of the impact of enterprise digital transformation on the comprehensive development of enterprises. Among them, (1) is the result of the regression analysis of the project without considering the control variables and only considering the core explanatory variables. The research results show that the role of enterprise digital transformation on the comprehensive development of enterprises shows a positive impact at the significance level of 1%. The t-value under the relevant parameter estimation is as high as 13.49, indicating that digital transformation has a positive and significant effect on promoting the comprehensive development of enterprises. At the same time, after incorporating the two control variables of enterprise registered assets and the region where the enterprise is located into model formula (2), the effect of enterprise digital transformation on the comprehensive development of enterprises still shows a positive impact at the 1% significance level, indicating that the promoting effect of digital transformation is stable.

Table 2 Regression analysis.

Variable	Coefficient	t-stat	P-Value	Significance
(1) Simple Reg (DTI)	/	/	/	/
Intercept	0.2066	21.31	0.00	***
DTI	0.5688	13.49	0.00	***
(2) Multivariate Reg (DTI.Region.REGCAP-DN)	/	/	/	/
Intercept	0.2051	14.46	0.00	***
DTI	0.5345	15.58	0.00	***
Region	-0.0089	-1.0980	0.2749	

REGCAP-DN	0.1989	7.3389	0.00	***
Model-Level Info	/	/	/	/
Simple Reg R²	0.6499	/	/	/
Multivariate Reg R²	0.7783	/	/	/
Multivariate Reg F-stat	112.400	/	0.00	***
N	100	/	/	/

*p < 0.1, **p < 0.05, ***p < 0.01; "Significance F" is the F - stat's p - value

Table 3 Scatter visualization study on the impact of digital transformation on the comprehensive development of enterprises.

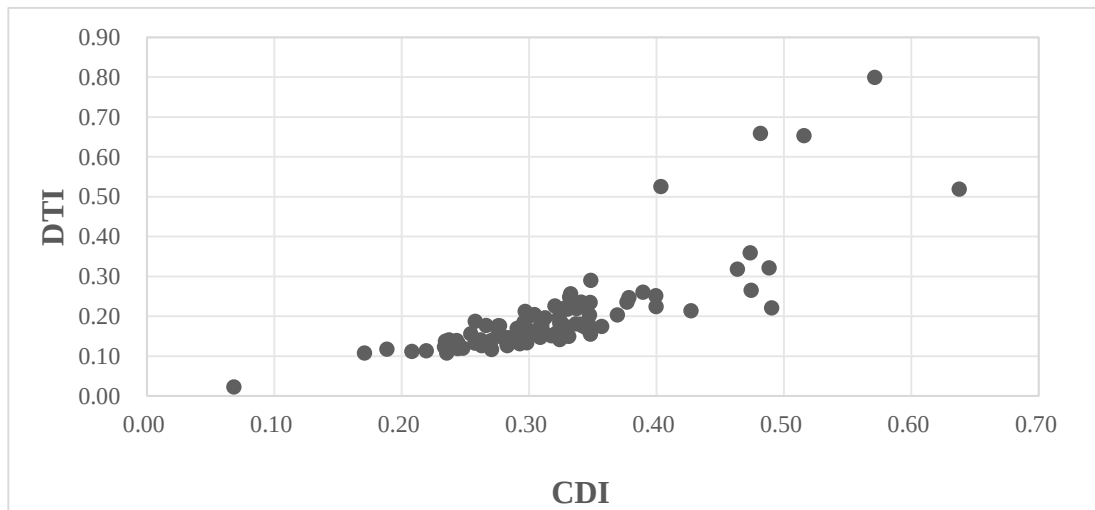


Table 4 Scatter visualization study on the impact of digital transformation on the comprehensive development of enterprises (High Assets).

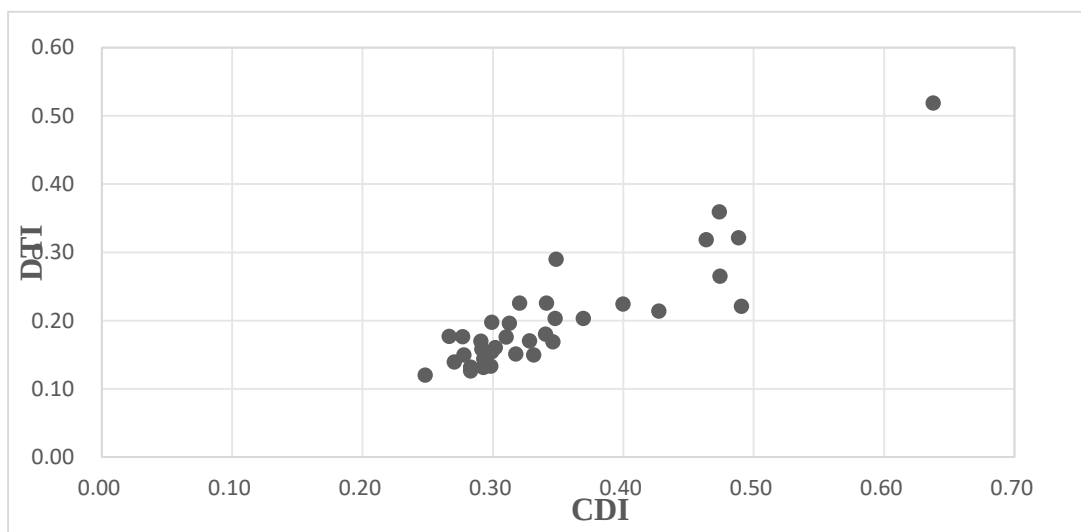


Table 5 Scatter visualization study on the impact of digital transformation on the comprehensive development of enterprises (Low Assets).

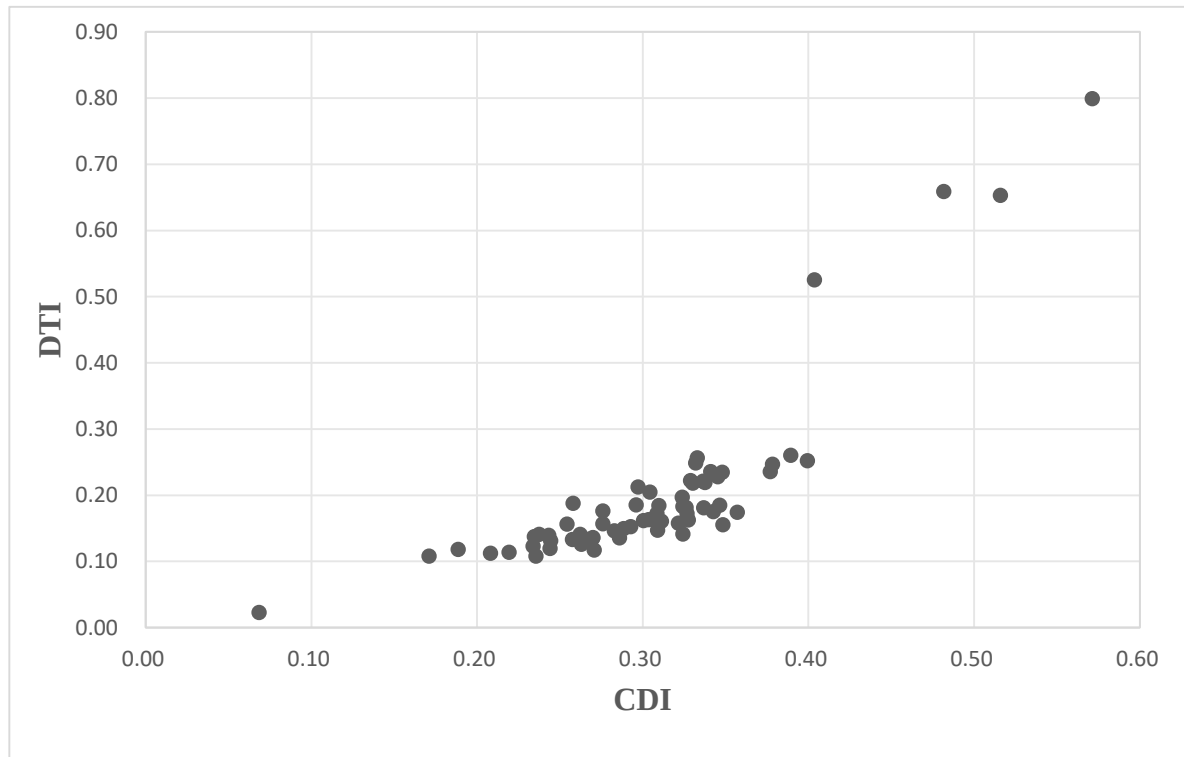


Table 6 Scatter visualization study on the impact of digital transformation on the comprehensive development of enterprises (Eastern Region).

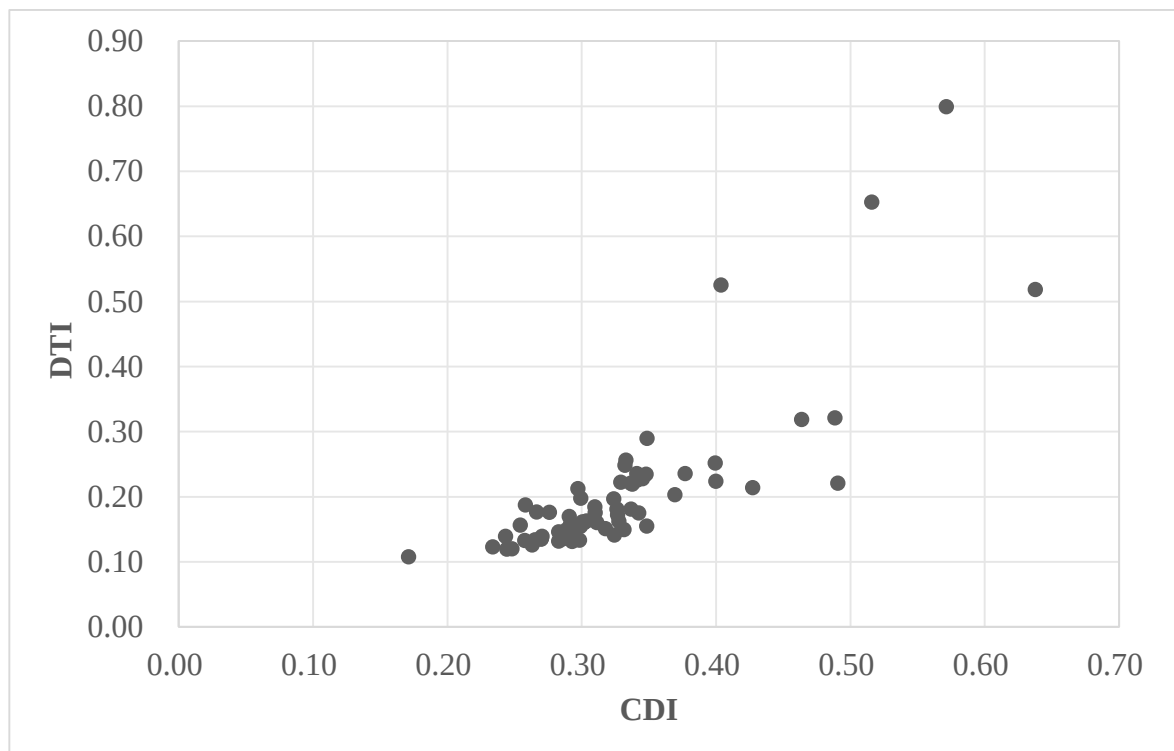
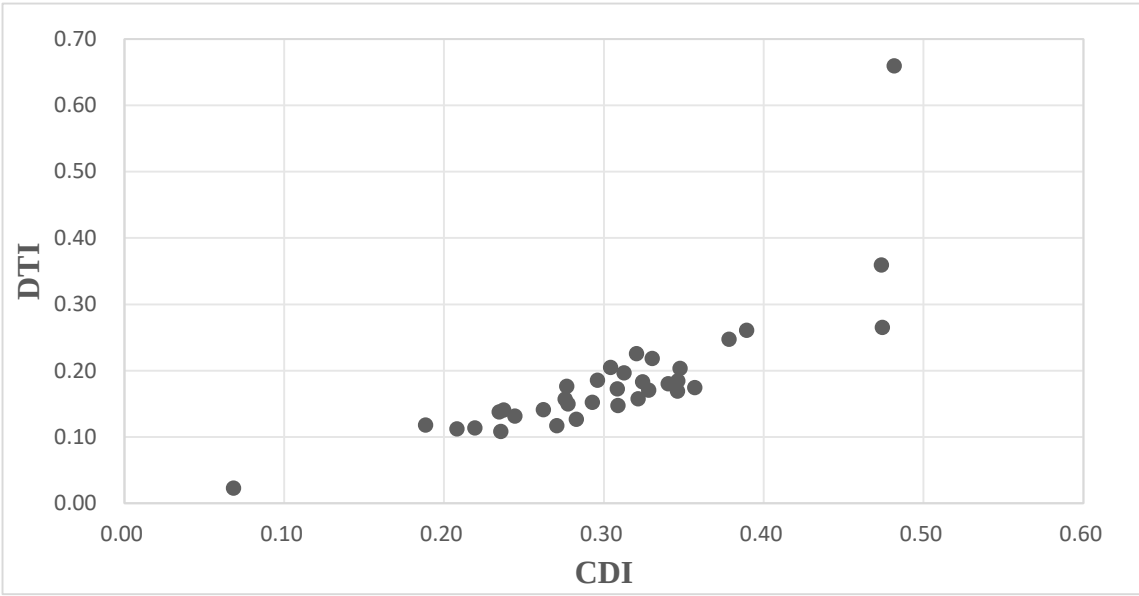


Table 7 Scatter visualization study on the impact of digital transformation on the comprehensive development of enterprises (Other Regions).



The empirical findings of this study provide robust evidence supporting digital transformation as a critical driver of comprehensive enterprise development, while simultaneously revealing important nuances regarding the conditions under which transformation initiatives yield optimal outcomes. The significant positive relationship between DTI and CDI ($\beta = 0.5345$, $t = 15.58$, $p < 0.01$) demonstrates that digital transformation substantially contributes to holistic enterprise advancement across multiple performance dimensions. This finding aligns with and extends the meta-analytic conclusions of Liang and Tian (2024), who identified innovation, operational performance, and capital market outcomes as key mechanisms through which digital transformation influences enterprise quality. The high t-statistic value indicates remarkable stability, suggesting that digital transformation effects are robust across diverse organizational contexts. The R^2 value of 0.7783 indicates that digital transformation, together with control variables, explains approximately 77.83% of the variance in comprehensive enterprise development. This substantial explanatory power suggests that the DTI construct effectively captures the essential dimensions of digital transformation that matter for organizational outcomes. However, the remaining 22.17% of unexplained variance points to additional factors, such as organizational culture, leadership quality, employee digital literacy, and external market conditions, that may also influence development outcomes but were not captured in this model.

The non-significant effect of geographic location (coefficient = -0.0089, $p = 0.2749$) represents one of the study's most striking findings, contradicting traditional assumptions about regional disparities in technological benefits. This suggests that digital transformation's advantages are largely democratized across geographic boundaries, challenging the conventional wisdom that eastern or more developed regions possess inherent advantages in leveraging digital technologies. This finding diverges from the contextual challenges identified by Kobusingye et al. (2025) in SMEs, where resource-constrained environments presented distinct obstacles to digital transformation success. Several explanations may account for this geographic neutrality: digital technologies and platforms are increasingly accessible regardless of physical location, with cloud computing, SaaS solutions, and digital infrastructure reducing traditional geographic barriers; the standardization of digital tools may enable enterprises in various regions to achieve

comparable implementation quality; and the sample composition, consisting of A-share listed companies, may represent organizations that have already overcome initial resource and infrastructure barriers, thereby minimizing regional differences. From a policy perspective, this finding suggests that government resources for promoting digital transformation need not concentrate disproportionately in traditionally advanced regions. Instead, policies supporting digital infrastructure, talent development, and financial assistance can be distributed more equitably, potentially reducing regional economic disparities.

The significant positive coefficient for registered capital ($\beta = 0.1989$, $t = 7.34$, $p < 0.01$) shows that financial resources remain fundamental to successful digital transformation and subsequent comprehensive development. This finding resonates with the resource allocation mechanisms identified by Tang and Zhang (2025), who demonstrated that digital transformation optimizes innovation factor allocation, a process requiring adequate financial investment. While smaller than the DTI coefficient, this effect is substantial and highly significant, suggesting that while digital transformation is the primary driver of comprehensive development, financial resources create enabling conditions that amplify transformation effectiveness. Enterprises with larger registered capital can invest more in advanced technologies, recruit specialized talent, develop robust digital infrastructure, and sustain longer transformation timelines, enhancing the depth and sustainability of digital initiatives. However, this raises equity concerns. If financial resources significantly facilitate digital transformation success, smaller enterprises or those in resource-constrained environments may face systemic disadvantages despite the geographic neutrality of digital benefits. This suggests a need for targeted financial support mechanisms, such as government subsidies, preferential lending programs, or venture capital initiatives, to enable smaller enterprises to undertake meaningful digital transformation.

The study identifies three critical implementation pathways. First, improving digital information utilization through intelligent decision support systems addresses the fundamental challenge of converting data availability into actionable insights. As Sun (2025) argues, enterprises must strengthen their capacity to accept, process, and apply digital information within digital trade environments. This pathway emphasizes that technology adoption alone is insufficient; organizations must develop complementary capabilities in data analytics, interpretation, and application. The emphasis on big data and artificial intelligence platforms reflects the current technological frontier in decision making support, but this requires more than technological investment; it necessitates organizational learning, process redesign, and cultural adaptation to evidence based decision making. Enterprises must train personnel in data literacy, redesign workflows to incorporate analytical insights, and foster cultures that value data driven over intuition based decisions.

Second, optimizing resource allocation with emphasis on innovation factors and digital talent directly addresses the talent shortage and insufficient R&D investment challenges identified in the introduction. This aligns with the findings of Wang et al. (2025c), who highlighted talent capacity and R&D investment as critical areas requiring policy attention in SME digital transformation. The specific focus on increasing R&D capital investment proportion and enhancing digital talent capacity reflects the understanding that digital transformation is fundamentally an innovation process requiring specialized expertise. However, this pathway faces challenges, particularly for smaller enterprises competing for limited talent in tight labor markets. Organizations may need to develop partnerships with educational institutions, create attractive work environments for digital professionals, and implement continuous learning programs to build internal capabilities over time.

Third, building digital transformation demonstration parks represents a strategic approach to organizational learning and capability development. Demonstration parks provide

tangible examples of digital solutions addressing specific pain points, create learning environments for employees, enable testing of new technologies before full scale deployment, and potentially foster collaborative learning among multiple organizations. This approach is particularly valuable for addressing the "cumbersome management processes" and "unclear responsibility divisions" identified as key challenges, as demonstration projects can model more efficient, digitally enabled organizational structures and workflows.

The findings both confirm and extend existing literature on digital transformation. The strong positive relationship aligns with Yu et al.'s (2024) energy sector findings and Liang and Tian's (2024) meta-analytic conclusions. However, this study's quantification of effect magnitude ($\beta = 0.5345$) provides more precise estimates, enabling better-informed investment decisions. The geographic neutrality finding contrasts with context-specific studies, such as Kobusingye et al.'s (2025) identification of resource constraint challenges in SMEs, potentially reflecting variations between developed and developing contexts, or between listed and unlisted companies. Further research across these dimensions would clarify when geographic factors significantly influence outcomes. The emphasis on financial resources resonates with Hoang's (2024) TOE framework findings, which identified organizational factors including management support and governance as critical adoption determinants. Registered capital may proxy for broader organizational capability, encompassing financial resources, management sophistication, strategic planning capacity, and institutional legitimacy.

Implications for theory development

The empirical findings of this study advance digital transformation theory through several significant contributions that refine existing frameworks and open new avenues for theoretical inquiry. First, the quantification of digital transformation's impact magnitude ($\beta = 0.5345$, $p < 0.01$) provides empirical precision that moves beyond qualitative assertions of positive relationships. This precise effect size enables theoretical models to incorporate specific parameters rather than directional hypotheses alone, facilitating more rigorous predictive modeling and cross-study comparisons. The substantial explanatory power ($R^2 = 0.7783$) validates the multi-dimensional index approach to measuring both digital transformation and comprehensive enterprise development, suggesting that composite constructs capturing technology adoption, investment intensity, and transformation outcomes more accurately represent the complexity of digitalization phenomena than single-indicator measures.

Second, the geographic neutrality finding challenges location-based contingency theories that have traditionally emphasized regional disparities in technological benefits. The non-significant regional coefficient ($p = 0.2749$) suggests that digital technologies may function as equalizing mechanisms that transcend geographic boundaries, at least among established enterprises with baseline resource thresholds. This finding calls for theoretical refinement of the Technology-Organization-Environment framework, specifically reconceptualizing environmental factors to distinguish between infrastructure-dependent and infrastructure-independent dimensions of digital transformation. The democratization of digital benefits across regions may reflect the maturation of digital infrastructure and cloud-based service models, suggesting that TOE framework applications should account for temporal evolution in technological accessibility. Future theoretical development should investigate boundary conditions under which geographic factors become salient versus neutral, potentially identifying critical resource thresholds or infrastructure requirements that mediate geographic effects.

Third, the significant role of registered capital ($\beta = 0.1989$, $p < 0.01$) enriches Resource-Based View applications by demonstrating that financial resources function as enabling

conditions rather than deterministic factors in digital transformation success. While the DTI coefficient is nearly three times larger than the registered capital coefficient, the latter's significance indicates that resource availability facilitates but does not substitute for strategic digital initiatives. This finding suggests a hierarchical resource model wherein financial capital enables acquisition of digital capabilities, but capability deployment effectiveness determines ultimate performance outcomes. Theoretically, this supports a two-stage model of digital transformation: resource acquisition (influenced by financial capacity) and resource deployment (influenced by strategic orientation and dynamic capabilities). This integration of RBV with dynamic capabilities theory provides a more nuanced understanding of how resources translate into competitive advantage through transformation processes.

Fourth, the study's multi-dimensional conceptualization of comprehensive enterprise development—spanning financial performance, innovation capability, scale strength, and digital empowerment—advances holistic measurement approaches in organizational performance theory. Traditional studies often examine single performance dimensions, potentially missing interdependencies and complementarities among outcome domains. The significant relationship between digital transformation and this composite development index suggests that digitalization creates value through multiple, potentially synergistic channels rather than isolated performance improvements. This finding supports stakeholder theory perspectives that emphasize balanced value creation across multiple constituencies and timeframes, as opposed to shareholder-centric financial metrics alone.

The 22.17% unexplained variance in the model identifies critical opportunities for theoretical extension. Future research should investigate organizational culture as a moderating variable, examining whether digital-friendly cultures amplify transformation effects; leadership characteristics, particularly digital literacy and transformational leadership styles among executives; employee capabilities beyond formal R&D personnel metrics, including digital literacy distribution across organizational levels; and external ecosystem factors such as industry digitalization intensity, supplier and customer digital maturity, and regulatory environments. These unmeasured factors likely interact with digital transformation initiatives to shape comprehensive development outcomes, suggesting potential for configurational theories that identify multiple pathways to successful digital transformation depending on specific combinations of organizational and contextual conditions.

Finally, the three identified implementation pathways—information utilization enhancement, resource allocation optimization, and demonstration park development—provide empirical grounding for process theories of digital transformation. These pathways represent distinct mechanisms through which digitalization influences organizational outcomes: cognitive (improved decision making through data), structural (resource reallocation toward innovation), and learning-based (capability development through demonstration). This mechanistic understanding enriches transformation process theories by identifying specific intermediate steps between technology adoption and performance outcomes, moving beyond black-box models that treat transformation as a direct input-output relationship. Future theoretical development should elaborate these pathways into stage-based or capability-maturity models that specify sequencing, interdependencies, and conditional effectiveness of different transformation approaches.

Implications for business and management practice

The research findings provide actionable guidance for enterprise managers, policymakers, and organizational decision-makers seeking to maximize returns on digital transformation investments while navigating implementation challenges. The primary practical implication stems from the substantial and significant relationship between digital

transformation and comprehensive enterprise development ($\beta = 0.5345$, $p < 0.01$), which provides compelling justification for prioritizing digital initiatives in strategic planning and resource allocation. For every one-unit increase in the Digital Transformation Index, enterprises can expect approximately a 0.53-unit increase in their Comprehensive Development Index, representing tangible improvements across financial performance, innovation capability, and operational effectiveness. This quantified relationship enables managers to conduct more precise cost-benefit analyses, moving beyond speculative assessments to evidence-based investment decisions. Organizations contemplating digital transformation can use this coefficient as a benchmark for projecting expected returns, adjusting for industry-specific factors and organizational readiness levels.

The geographic neutrality finding holds profound implications for strategic location decisions and resource distribution. The non-significant regional effect demonstrates that enterprises in less-developed or non-coastal regions can achieve digital transformation benefits comparable to those in traditionally advantaged eastern areas, provided they invest adequately in digital initiatives. This democratization of digital benefits suggests several practical strategies. First, enterprises in developing regions should approach digital transformation with confidence rather than defeatism, recognizing that geographic disadvantages in traditional industrial contexts do not necessarily translate to digital contexts. Second, organizations should prioritize investments in digital infrastructure, talent, and capabilities over physical relocation strategies, as the former appears more consequential for performance outcomes. Third, corporate location decisions can increasingly prioritize factors beyond traditional agglomeration advantages—such as cost structures, talent availability, quality of life, and regulatory environments—given that digital technologies enable geographically dispersed operations without performance penalties.

For policymakers, this finding suggests that regional development strategies should emphasize digital infrastructure and capability building across all regions rather than concentrating resources in already-developed areas. Government initiatives supporting broadband expansion, cloud computing accessibility, digital literacy programs, and technology transfer mechanisms can effectively reduce regional disparities by enabling enterprises everywhere to leverage digital transformation benefits. This represents a more equitable and potentially more effective approach to economic development than traditional strategies emphasizing physical infrastructure concentration in designated zones.

The significant role of registered capital ($\beta = 0.1989$, $p < 0.01$) provides critical insights for financial planning and resource mobilization strategies. While smaller than the digital transformation coefficient, this effect indicates that financial resources meaningfully enable transformation success by facilitating technology acquisition, talent recruitment, infrastructure development, and sustained implementation timelines. Practically, this suggests several priorities. Large enterprises with substantial registered capital should leverage their financial advantages aggressively, pursuing comprehensive transformation initiatives that smaller competitors may struggle to match. This includes investments in cutting-edge technologies like artificial intelligence and blockchain, recruitment of specialized digital talent, development of proprietary digital platforms, and longer-term transformation programs that may require multiple years before yielding returns.

Conversely, small and medium-sized enterprises must pursue strategic approaches that maximize impact within resource constraints. This includes focusing on high-impact, lower-cost digital solutions such as cloud-based SaaS platforms that minimize upfront infrastructure costs, collaborative partnerships with technology providers offering shared or subsidized solutions, phased transformation approaches that prioritize initiatives with fastest payback periods, and actively pursuing external funding sources including government grants, venture capital, and strategic partnerships with larger enterprises seeking supply

chain digitalization. Financial institutions and venture capitalists should recognize digital transformation readiness and strategic clarity as key indicators of SME growth potential, potentially justifying preferential lending terms or investment for enterprises demonstrating credible transformation roadmaps.

The three identified implementation pathways provide concrete action plans for operationalizing digital transformation. The first pathway—improving digital information utilization through intelligent decision support systems—requires organizations to move beyond data collection to data activation. Practical steps include implementing integrated data platforms that consolidate information from disparate systems, establishing cross-functional analytics teams combining domain expertise with data science capabilities, developing dashboard and visualization tools that make insights accessible to non-technical decision makers, creating feedback loops that evaluate decision outcomes and refine analytical models, and fostering data-driven cultures that value evidence over hierarchy or intuition in decision making. Organizations should conduct audits of existing data assets to identify high-value information currently underutilized, then prioritize analytics initiatives that address critical pain points or strategic opportunities. Decision support systems should focus on domains with highest strategic impact, such as customer intelligence for market expansion, supply chain optimization for cost reduction, or predictive maintenance for operational efficiency.

The second pathway—optimizing resource allocation with emphasis on innovation factors and digital talent—addresses the critical talent shortage identified as a primary transformation barrier. Organizations should implement comprehensive talent strategies including competitive compensation packages that reflect market premiums for digital skills, partnerships with universities and technical institutes for talent pipelines and continuing education, internal training programs that upskill existing employees in digital competencies, flexible work arrangements that attract digital professionals valuing autonomy and work-life balance, and innovation-friendly cultures that provide digital talent with meaningful challenges and professional growth opportunities. Regarding R&D investment, enterprises should establish clear targets for R&D expenditure as a percentage of revenue, aligned with industry benchmarks and strategic ambitions. However, investment quantity must be complemented by quality—ensuring R&D spending focuses on digital technologies and applications with clear strategic alignment, implementing stage-gate processes that evaluate projects rigorously while allowing experimentation, and creating mechanisms for translating R&D outputs into commercialized products and services.

The third pathway—building digital transformation demonstration parks—offers a practical approach to organizational learning and risk mitigation. Rather than enterprise-wide, big-bang implementations that risk massive disruption if unsuccessful, demonstration parks enable controlled experimentation with new technologies and processes. Organizations should identify specific business units, processes, or functions as demonstration sites based on criteria including strategic importance, receptiveness to change, measurability of outcomes, and representativeness of broader organizational challenges. These demonstration initiatives should follow structured methodologies: clearly defined objectives and success metrics, dedicated resources and executive sponsorship, systematic documentation of lessons learned, structured knowledge transfer mechanisms to disseminate insights across the organization, and explicit decision criteria for scaling successful demonstrations versus terminating unsuccessful ones. Demonstration parks are particularly valuable for testing emerging technologies whose benefits remain uncertain, piloting process redesigns that require behavioral change, and building organizational confidence and competence before broader rollout.

Organizations should also recognize that digital transformation is not a one-time project but an ongoing strategic orientation requiring continuous adaptation. The high explanatory power of the model ($R^2 = 0.7783$) notwithstanding, the remaining 22.17% unexplained variance suggests that factors beyond the measured variables influence outcomes. Managers should therefore complement quantitative digital investments with qualitative organizational development initiatives including change management programs that address employee concerns and resistance, leadership development ensuring executives possess digital literacy and transformation vision, cultural interventions that promote experimentation, learning from failure, and cross-functional collaboration, and regular strategic reviews that reassess digital priorities in light of technological evolution and market dynamics.

Finally, for industries and enterprises at earlier digitalization stages, the findings suggest that catching up remains feasible. The strong digital transformation coefficient indicates that organizations can achieve substantial development gains through systematic digitalization efforts, while the geographic neutrality finding demonstrates that late movers need not accept permanent disadvantage. However, the registered capital effect indicates that financial resources facilitate acceleration, suggesting that organizations should secure adequate funding before launching transformation initiatives rather than pursuing under-resourced efforts likely to yield disappointing results. Strategic clarity regarding transformation objectives, pathways, and resource requirements emerges as essential for converting digital investments into comprehensive enterprise development.

Conclusion and Suggestions

The Digital Transformation Index (DTI) demonstrated a significant positive impact on enterprise development, maintaining significance even after controlling for location and registered capital. This confirms that digital transformation is critical for improving management efficiency, innovating operations, and gaining competitive advantages. Location's impact was not significant, indicating that digital transformation advantages are largely unrestricted by geography, helping narrow traditional regional gaps. The significant positive coefficient for registered capital shows that sufficient funds are crucial for implementing digital transformation through technology investment, talent recruitment, and infrastructure development. Enterprises should deepen digital transformation through three paths: First, build intelligent decision-making systems using big data and AI platforms to optimize management processes. Second, optimize resource allocation by increasing digital talent capacity and R&D investment. Third, build digital transformation demonstration parks to analyze pain points and apply digital technologies.

Several limitations warrant consideration. First, the sample consists exclusively of A-share listed companies, limiting generalizability to smaller or privately-held enterprises. The cross-sectional 2024 data prevents causal inference; longitudinal analysis would strengthen causal claims. The DTI may not fully capture digital transformation's complexity, excluding dimensions like organizational culture, employee digital competence, or ecosystem partnerships. The quantifiable metrics may undervalue qualitative aspects such as organizational agility or innovation culture, which are crucial for long-term competitiveness.

Disclosure Statement

We hereby declare that we have no financial, personal, or professional interests that could inappropriately influence or bias this work.

Declaration of Funding

No funding was received for this study.

Acknowledgments

We would like to express our sincere gratitude to the International College of Rajamangala University Technology Krungthep for providing the excellent platform and resources for this research project. We would also like to thank Professor Shen Junling from the School of Economics and Management of Nanyang Normal University, and Lecturers Zhao Chenxi and Wang Guangqi from the International Exchange and Cooperation Office for their guidance during the proposal and review stages, as well as for building communication bridges during academic exchange activities. We would also like to thank the various parties who provided data access and empirical analysis technical support and sincere gratitude to all colleagues who have provided help and inspiration.

References

- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of management*, 17(1), 99-120.
- Geng, X. (2025). Research on the mechanism of the impact of digital transformation of circulation enterprises on their operating performance. *Commercial Economic Research*, 2025(01), 49-52.
- Hoang, H. (2024). Navigating the digital landscape: an exploration of the relationship between technology-organization-environment factors and digital transformation adoption in SMEs. *Sage Open*, 14(4), 21582440241276198.
- Kobusingye, L., Xiao, Y., & Ntizoyimana, J. C. (2025). Digital transformation, innovation and market expansion capabilities: exploring pathways to organizational growth in SMEs across East African countries. *Business Process Management Journal*, 1-24.
- Lee, J. (2024). Framework Research on Digital Transformation (*Doctoral dissertation, Seoul National University Graduate School*)
- Liang, D., & Tian, J. (2024). The impact of digital transformation on the high-quality development of enterprises: an exploration based on meta-analysis. *Sustainability*, 16(8), 3188.
- Marolt, M., Lenart, G., Kljajić Borštnar, M., & Pucihar, A. (2024). Exploring digital transformation journey among micro, small, and medium-sized enterprises. *Systems*, 13(1), 1.
- Martínez-Peláez, R., Ochoa-Brust, A., Rivera, S., Félix, V. G., Ostos, R., Brito, H., ... & Mena, L. J. (2023). Role of digital transformation for achieving sustainability: mediated role of stakeholders, key capabilities, and technology. *Sustainability*, 15(14), 11221.
- Ou, L., & Tian, Y. (2025). Decoding enterprise digital transformation: A multi-theoretical exploration. *Information Development*, 02666669251315838.
- Soto Setzke, D., Riasanow, T., Böhm, M., & Krcmar, H. (2023). Pathways to digital service innovation: The role of digital transformation strategies in established organizations. *Information Systems Frontiers*, 25(3), 1017-1037.
- Sun, J. (2025). Research on the path of digital transformation of enterprises under the background of digital trade. Chinese Science and Technology Journal Database (Full Text Edition) *Economic Management*, 2025(1), 001-004.
- Tang, J., & Zhang, C. (2025). Digital transformation, resource allocation and enterprise innovation quality. *Contemporary Financial Research*, 2025(4), 63-77.

- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic management journal*, 18(7), 509-533.
- Tornatzky, L. G., & Fleischer, M. (1990). The processes of technological innovation. Lexington Books.
- Wang, P. S., Chou, T. C., & Chen, J. R. (2025a). Exploring the Development Trajectory of *Digital Transformation*. *Systems*, 13(7), 568.
- Wang, H., & Duan, Q. (2025b). The impact of digital transformation on the high-quality development of enterprises. *Journal of Shenyang University (Social Science Edition)*, 27(3), 1-12.
- Wang, K., Qiu, S., Yang, Y., & Wang, C. (2025c). The current status, difficulties and policy recommendations of digital transformation of small and medium-sized enterprises. *Digital Transformation*, 2(1), 27-31.
- Yu, Y., Ren, F., Ju, Y., Zhang, J., & Liu, X. (2024). Exploring the role of digital transformation and breakthrough innovation in enhanced performance of energy enterprises: fresh evidence for achieving sustainable development goals. *Sustainability*, 16(2), 650.
- Zhang, F., Sun, H., & Guo, H. (2025). Seizing the opportunities of the digital age and promoting the digital transformation of light industrial enterprises. *Digital Transformation*, 2(2), 49-63.

International Service Learning to Promote Quality Education and Sustainable Communities in Thailand

Anggraini Ratih Purwandari, Universitas PGRI Argopuro Jember

Ahmad Fadli, S.H.I, Universitas PGRI Argopuro Jember

Husnul Holifah, Universitas PGRI Argopuro Jember

*Tubagus Achmad Darodjat, Rajamangala University of Technology Krungthep

* Corresponding author. E-mail address: Tubagus.d@mail.rmutk.ac.th

Received: March 16, 2026; Revised: April 25, 2026; Accepted: April 30, 2026

Abstract

Quality education and sustainable communities are central to achieving the United Nations Sustainable Development Goals (SDGs), particularly SDG 4 and SDG 11. Higher education institutions are increasingly encouraged to contribute to these goals through innovative pedagogical approaches that combine academic learning with community engagement. This study examines an International Service Learning Program implemented in Thailand, designed to promote quality education and sustainability awareness through short-term international community engagement. Grounded in Service Learning Theory, Experiential Learning Theory, and Transformative Learning Theory, the program integrated participatory educational activities, sustainability workshops, and structured reflection over a three-day intensive period. A qualitative research design was employed, utilizing observations, student reflection journals, focus group discussions, and community feedback. The findings indicate enhanced educational engagement among community participants, increased sustainability awareness, strengthened community–university partnerships, and significant development of global competence and reflective capacity among students. The integration of theoretical frameworks provides insight into how short-term international service learning can generate meaningful educational and social outcomes when designed with participatory, experiential, and reflective principles. The study concludes that international service learning programs, even with limited duration, can effectively contribute to quality education and sustainable community development while fostering transformative learning experiences for students.

Keywords: international service learning; experiential learning; transformative learning; quality education; SDGs

Introduction

Quality education and sustainable communities are widely acknowledged as essential foundations for long-term social, economic, and environmental development (United nation, 2023). The United Nations Sustainable Development Goals (SDGs), particularly SDG 4 (Quality Education) and SDG 11 (Sustainable Cities and Communities), emphasize the need for inclusive, relevant, and sustainable educational practices that empower individuals and communities to address complex global challenges (Celio et al., 2017).

In response to these global priorities, higher education institutions are increasingly expected to transcend traditional classroom-based learning and actively engage with communities through experiential and collaborative approaches. One pedagogical model that has gained prominence is **international service learning**, which integrates academic learning objectives with community service activities in cross-cultural contexts (Bringle et al., 2022). This approach enables students to apply theoretical knowledge in real-world settings while fostering global citizenship, intercultural competence, and social responsibility.

This research explores the *International Service Learning Program to Promote Quality Education and Sustainable Communities in Thailand*, a short-term international community engagement initiative involving international students, local university students, academic facilitators, and community stakeholders (Bringle et al., 2017). Despite it's a month duration, the program was intentionally designed to generate meaningful educational and social impact through participatory learning, sustainability-focused activities, and structured reflection.

The study aims to analyze the program's design, implementation, and outcomes by explicitly linking empirical findings to three complementary theoretical perspectives: Service Learning Theory, Experiential Learning Theory, and Transformative Learning Theory. By doing so, the article contributes to the growing body of literature on international service learning and demonstrates how short-term programs can support SDG-oriented educational practices.

Methodology

Program Design and Theoretical Orientation

The International Service Learning Program was designed as an intensive, short-term initiative grounded in Service Learning Theory, which emphasizes reciprocal relationships

between students and communities, meaningful service aligned with academic objectives, and structured reflection (Sandaran et al., 2021). Experiential Learning Theory informed the pedagogical process by framing learning as a cycle of experience, reflection, conceptualization, and action, while Transformative Learning Theory guided the reflective components aimed at fostering critical self-awareness and perspective transformation (Rodríguez et al, 2024).

Participants and Study Location

Participants included international students from partner universities, local students from the host university in Thailand, and academic facilitators from both institutions (Waldner et al., 2019). Community partners comprised local schools, youth groups, and community leaders. The program was conducted in a community characterized by diverse educational conditions and emerging environmental challenges, making it suitable for sustainability-oriented educational interventions.

Implementation Stages

The program was implemented through four interconnected stages:

1. Orientation and Cultural Immersion

Participants were introduced to program objectives, service learning principles, ethical engagement, and local cultural contexts. This stage established mutual understanding and prepared participants for collaborative engagement.

2. Community Needs Assessment

Using participatory methods such as observation, informal interviews, focus group discussions, and community mapping, mixed-nationality student groups identified key issues related to education quality and sustainability awareness.

3. Educational Workshops and Community Activities

Based on assessment findings, students designed and facilitated interactive educational workshops focusing on learner-centered pedagogy, environmental awareness, and sustainable daily practices.

4. Reflection and Evaluation

Daily reflection sessions were conducted to connect practical experiences with academic theories and sustainability concepts. Evaluation involved participant feedback, facilitator observations, and group discussions.

Data Collection and Analysis

Qualitative data were collected through observation notes, student reflection journals, focus group discussions, and community feedback (Wals et al., 2017). The data were analyzed thematically to identify patterns related to educational engagement, sustainability awareness, community–university partnerships, and student learning outcomes (Mitchell et al., 2017). Theoretical frameworks were used as analytical lenses to interpret the findings.

Results and Discussion

Educational Engagement and Service Learning Outcomes

Consistent with Service Learning Theory, the program resulted in increased educational engagement among children and youth in the community. Interactive teaching methods, group-based learning, and participatory discussions enhanced motivation and participation. Community members reported that the workshops introduced innovative pedagogical approaches that could be adapted to local educational practices (Diez-Ojeda et al., 2025).

These findings support the theoretical premise that service learning enhances education quality by aligning service activities with learning objectives and fostering reciprocal knowledge exchange. Rather than positioning the community as passive recipients, the program enabled co-learning and mutual benefit.

Experiential Learning and Sustainability Awareness

From an Experiential Learning Theory perspective, the program effectively facilitated learning through direct engagement and reflection. Hands-on sustainability activities, such as waste management demonstrations and resource conservation discussions, enabled community members to translate abstract concepts into practical actions (Kolb et al., 2018).

For students, the experiential learning cycle was evident as they engaged in concrete experiences, reflected on observations, conceptualized sustainability principles, and adapted their approaches during subsequent activities. These results align with existing research

highlighting the effectiveness of experiential learning in promoting environmental awareness and behavioral change.

Transformative Learning and Student Development

Transformative Learning Theory provides insight into the deeper learning outcomes observed among students. Exposure to different educational realities and sustainability challenges prompted students to critically examine their assumptions and cultural perspectives. Reflection journals revealed shifts in students' understanding of social responsibility, community engagement, and global inequality (Mezirow et al, 2018).

Structured reflection sessions facilitated critical dialogue on ethical considerations, power relations, and cultural sensitivity. These reflective processes contributed to perspective transformation, indicating that the program fostered not only skill development but also changes in values and worldviews.

Strengthening Community–University Partnerships

The participatory design of the program strengthened relationships between universities and the local community (Lee et al., 2023). Community leaders actively contributed to planning and implementation, ensuring relevance and local ownership. This outcome aligns with Service Learning Theory's emphasis on partnership and reciprocity and suggests potential for sustained collaboration beyond the program period.

Challenges and Adaptive Strategies

Despite positive outcomes, challenges included language barriers and time constraints. Language limitations were addressed through visual materials, peer translation, and non-verbal communication strategies. Time constraints necessitated a focus on achievable objectives and quality engagement. These adaptive strategies demonstrate that short-term programs can remain effective when supported by strong planning and theoretical grounding.

Conclusion

This study demonstrates that a short-term International Service Learning Program can meaningfully contribute to quality education and sustainable community development when grounded in robust theoretical frameworks. By integrating Service Learning Theory, Experiential Learning Theory, and Transformative Learning Theory, the program

successfully enhanced educational engagement, increased sustainability awareness, strengthened community–university partnerships, and fostered global competence and transformative learning among students.

The findings suggest that duration alone does not determine program impact; rather, intentional design, participatory approaches, and structured reflection are critical factors. For higher education institutions, international service learning offers a practical and ethically grounded strategy to operationalize the SDGs through community-based education.

Future programs may benefit from extended engagement, follow-up activities, and digital platforms to sustain learning and collaboration. Overall, this study contributes to the literature on international service learning by providing empirical evidence and theoretical integration that highlight the potential of short-term programs to generate lasting educational and social value.

Recommendations

Based on the findings of this study, it is recommended that future international service learning programs strengthen their impact by extending engagement through follow-up activities or hybrid models that combine short-term fieldwork with digital support, thereby ensuring continuity of learning and community empowerment. Enhanced pre-departure preparation in intercultural communication and ethical engagement is essential to minimize barriers and improve collaboration. Reflection should be institutionalized as a formal academic component to deepen experiential and transformative learning outcomes. Furthermore, greater community involvement in program design and evaluation is encouraged to promote local ownership and sustainability. Finally, systematic impact assessment and replication of similar programs in diverse contexts are recommended to strengthen evidence-based practices and contribute to the advancement of service learning scholarship in higher education.

References

Bringle, R. G., Hatcher, J. A., & Clayton, P. H. (2017). The scholarship of civic engagement: Defining, documenting, and evaluating faculty work. *Journal of Higher Education Outreach and Engagement*, 21(1), 9–38.

- Bringle, R. G., Santos Rego, M. A., & Regueiro, B. (2022). Service learning, educational innovation, and social transformation. *Frontiers in Education*, 6, 818660. <https://doi.org/10.3389/feduc.2021.818660>
- Celio, C. I., Durlak, J., & Dymnicki, A. (2017). A meta-analysis of the impact of service-learning on students. *Journal of Experiential Education*, 34(2), 164–181.
- Diez-Ojeda, M. (2025). Service-learning in environmental education: Impacts on sustainable development attitudes. *Education Sciences*, 15(1), 98. <https://doi.org/10.3390/educsci15010098>
- Kolb, D. A. (2018). *Experiential learning: Experience as the source of learning and development* (2nd ed.). Pearson Education.
- Lee, W. E., & Perdana, A. (2023). Effects of experiential service learning on sustainability awareness and community engagement. *Journal of Accounting Education*, 62, 100830. <https://doi.org/10.1016/j.jaccedu.2023.100830>
- Mezirow, J., Taylor, E. W., & Associates. (2018). *Transformative learning in practice: Insights from community, workplace, and higher education*. Jossey-Bass.
- Mitchell, T. D., Richard, F. D., Battistoni, R. M., Rost-Banik, C., Netz, R., & Zakoske, C. (2017). Reflective practice that persists: Connections between reflection in service-learning programs and long-term civic engagement. *Michigan Journal of Community Service Learning*, 23(2), 49–63.
- Rodríguez-Zurita, D., Jaya-Montalvo, M., Moreira-Arboleda, J., Raya-Diez, E., & Carrión-Mero, P. (2024). Sustainable development through service learning and community engagement in higher education: A systematic literature review. *International Journal of Sustainability in Higher Education*, 26(1), 158–201. <https://doi.org/10.1108/IJSHE-03-2023-0102>
- Sandaran, S. C., Koomson, I., & Pradhan, M. (2021). Education for sustainable development in higher education: A systematic review. *Sustainability*, 13(9), 4955. <https://doi.org/10.3390/su13094955>
- Sundman, J. (2025). Experiential learning for sustainability in higher education: A systematic review. *International Journal of Sustainability in Higher Education*. Advance online publication.
- United Nations. (2017). *Education for Sustainable Development Goals: Learning objectives*. UNESCO Publishing.
- United Nations. (2023). *The Sustainable Development Goals report 2023*. United Nations.

- Waldner, L. S., McGorry, S. Y., & Widener, M. C. (2019). E-service learning: The evolution of service-learning to engage a growing online student population. *Journal of Higher Education Outreach and Engagement*, 23(2), 97–118.
- Wals, A. E. J., & Benavot, A. (2017). Can we meet the sustainability challenges? The role of education and lifelong learning. *European Journal of Education*, 52(4), 404–413. <https://doi.org/10.1111/ejed.12250>