

Mapping research on cross-cultural academic adaptation among international students: A bibliometric review



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ABSTRACT

The rapid internationalization of higher education has significantly increased the mobility of international students worldwide, making cross-cultural academic adaptation an increasingly important research topic. However, despite a growing body of research on international students' adjustment experiences, the intellectual structure, thematic development, and collaboration patterns of research on cross-cultural academic adaptation remain insufficiently mapped. This study presents a bibliometric analysis of research on international students' cross-cultural academic adaptation published between 2001 and 2025. Using a dataset of 150 articles retrieved from the Web of Science Core Collection, descriptive bibliometric indicators and science-mapping techniques, including keyword co-occurrence, co-citation, and co-authorship analyses conducted using VOSviewer, were employed to examine publication trends, intellectual structures, and collaborative patterns in the field. The findings reveal a substantial increase in research output after 2015, with research concentrated in education and psychology and organized around interconnected themes related to psychosocial adjustment, learning processes, institutional contexts, and adaptation outcomes. The results also highlight the central roles of China, the United States, and Australia as major contributors to this research field, as well as uneven international collaboration patterns shaped by global student mobility flows. Overall, this review synthesizes the evolving knowledge structure of cross-cultural academic adaptation research and identifies directions for future studies, including comparative designs, broader geographic coverage, and emerging perspectives such as digitally mediated learning environments and technology-supported academic engagement among international students.

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1. Introduction

Internationalization of higher education (IHE) has become a central force shaping contemporary higher education systems worldwide (Zhang and Li, 2022). Universities now play a pivotal role in the global knowledge enterprise, extending their influence beyond traditional teaching and research functions. In this context, the concept of "education hubs" has emerged as countries seek to position themselves as regional or global centers for student recruitment, education and training, and, increasingly, research and innovation (Knight,

2021). For example, in Southeast Asia, several countries have actively pursued internationalization strategies by positioning themselves as regional education hubs. Thailand's perspective, the government has actively promoted policies to position the country as a regional education hub within ASEAN. Thai higher education institutions have expanded international programs, particularly at the graduate level, to attract ASEAN and international students (Lertpusit, 2022; Mangmeechai and Jirapornvaree, 2019). In addition, Singapore has strategically developed a creative, innovative, and internationally competitive higher education system as part of its broader knowledge economy agenda. By aligning educational quality with international standards and promoting partnerships with leading global universities through initiatives such as the Global Schoolhouse Strategy, the country has strengthened its position as a regional education hub. Moreover, Singapore's bilingual education policy, with English as the

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primary medium of instruction, enhances graduates' global employability and intercultural competence, further increasing the country's attractiveness to international students (Weng, 2025). As a result of this expansion, international students have become a prominent population within higher education institutions. International student mobility has expanded markedly within tertiary education over the past decade. The number of international students enrolled in OECD countries increased from approximately 3.0 million in 2014 to more than 4.6 million by 2022. Despite the disruptions caused by the COVID-19 pandemic, international student numbers continued to grow, recording an 18% increase between 2018 and 2022, following a more pronounced rise of nearly 30% during the period from 2014 to 2018. Throughout this period, patterns of international student mobility remained relatively stable, with Australia, Canada, France, Germany, the United Kingdom, and the United States collectively hosting nearly two-thirds of all international students across OECD countries (OECD, 2025).

Studying in a foreign country exposes students to learning environments that often differ markedly from those in their home contexts. Beyond language barriers, international students must navigate unfamiliar academic norms, teaching and assessment practices, classroom interaction styles, and expectations regarding independent learning and critical thinking. These cross-cultural learning contexts require students to adjust not only socially but also academically, as cultural differences are deeply embedded in educational systems and pedagogical traditions. These challenges can significantly disrupt their academic performance (Banjong, 2015; Eze and Inegbedion, 2015; Wong and Hyde, 2024). Within this context, cross-cultural academic adaptation has emerged as a critical construct for understanding international students' experiences. Academic adaptation is a central concern for international students, as it requires them to adjust to new and often unfamiliar educational systems (Church, 1982). This adaptation does not merely involve mastering academic content but also extends to navigating diverse aspects of the learning environment, such as differences in education systems, teaching and lecture styles, classroom culture, instructional methods, communication patterns, and assessment practices across countries (Lou, 2021). In addition, international students must adapt to various elements of the campus environment, including courses, relationships with lecturers and staff, as well as organizational structures within the university (Li and Peng, 2019). These challenges are further intensified by the diverse cultural, linguistic, and religious backgrounds of students, many of which may contrast significantly with the host culture (Alharbi and Smith, 2018).

A growing body of research has examined international students' experiences from multiple perspectives. In parallel, bibliometric reviews and science-mapping studies have increasingly been

employed to synthesize large and complex bodies of literature related to international students, student mobility, and cross-cultural adjustment, including themes such as mental health (Cao et al., 2021), acculturation (Zhao and Harji, 2024), and psychological adaptation (Soheili and Lanz, 2025). These studies have generated valuable insights into publication trends, influential contributors, and dominant research themes. However, existing bibliometric analyses have largely examined adjustment as a broad or psychologically oriented construct, with comparatively limited attention given to academic adaptation as a distinct education-centered domain. Consequently, the intellectual structure, thematic evolution, and collaborative patterns of research on cross-cultural academic adaptation have received relatively limited bibliometric attention. Therefore, a bibliometric review focusing specifically on cross-cultural academic adaptation among international students covering the period from 2001 to 2025 offers an opportunity to further clarify the development of this research area. Such an analysis enables a systematic examination of a quarter century of scholarly output to clarify how research on cross-cultural academic adaptation among international students has evolved. Specifically, it facilitates the identification of influential publications and contributors, the mapping of thematic clusters, and the detection of research gaps within the field. By providing a structured overview of the intellectual landscape and developmental trajectories of this research domain, the present bibliometric study contributes to the advancement of theoretical, empirical, and practical knowledge in international higher education and offers a foundation for future research aimed at supporting international students' academic adaptation and success.

2. Research objectives

The present study aims to systematically analyze the scientific literature on cross-cultural academic adaptation among international students published between 2001 and 2025. Specifically, it seeks to: (1) examine publication trends in research on cross-cultural academic adaptation over time; (2) identify the most productive and influential contributors, including countries, institutions, authors, journals, and subject areas; (3) explore major research themes and the intellectual structure of the field through keyword co-occurrence and co-citation analyses; and (4) analyze author and country-level collaboration patterns in research on cross-cultural academic adaptation among international students.

3. Methodology

This study employed a bibliometric research design to systematically map the scientific landscape of cross-cultural academic adaptation among international students, following the structured bibliometric workflow proposed by Passas (2024).

The research process began with the formulation of research objectives to guide the scope and direction of the analysis, with particular emphasis on identifying publication trends, influential authors and sources, thematic structures, and international collaboration networks within this research domain. A comprehensive literature search was conducted using the Web of Science Core Collection (WoSCC), which was selected for its rigorous indexing standards, high-quality citation data, and wide coverage of peer-reviewed journals in education, psychology, and the social sciences.

The literature search was conducted in the Web of Science Core Collection using the Topic (TS) field, which includes titles, abstracts, author keywords, and Keywords Plus. The search string was designed to capture studies addressing academic adaptation in cross-cultural higher education contexts and international student populations. The following query was applied: TS = (("academic adaptation" OR "academic adjustment" OR "academic acculturation" OR "learning adaptation" OR "study adaptation" OR "cross-cultural academic") AND ("international student*" OR "overseas student*" OR "student* abroad")). To ensure consistency and analytical rigor, the search was limited to English-language journal articles and review articles published between 2001 and 2025. The bibliographic search was conducted in January 2026, after the completion of the 2025 publication year. The initial search yielded 154 records, which constituted the preliminary dataset for further screening and refinement. A systematic screening process was subsequently applied to ensure the relevance of the included publications. Titles and abstracts were manually reviewed to exclude studies that did not focus on international students or that addressed adjustment processes unrelated to academic or learning contexts. After screening, all remaining records met the predefined inclusion criteria and were retained for the final bibliometric analysis. All eligible records were exported from the Web of Science Core Collection in plain text (.txt) format, which is compatible with bibliometric analysis software. The exported files contained comprehensive bibliographic information, including author names, affiliations, publication years, source titles, abstracts, author keywords, Keywords Plus, citation counts, and reference lists. Microsoft Excel was subsequently used for data cleaning and preprocessing, including the removal of duplicate records, standardization of author names and keywords, and verification of bibliographic consistency, in accordance with established bibliometric data preparation procedures.

Bibliometric analyses were conducted using VOSviewer (Version 1.6.20). The analytical techniques were selected in alignment with the research objectives and included keyword co-occurrence analysis to identify major research themes, co-authorship analysis to examine collaboration patterns among authors and countries, and citation and co-citation analyses to reveal

influential publications and the intellectual structure of the field. Network, overlay, and density visualizations were generated to facilitate the examination of thematic clusters, temporal trends, and collaborative relationships. Finally, the findings were systematically interpreted by integrating quantitative bibliometric indicators with visual network maps in relation to the research objectives. This approach enabled the identification of dominant research themes, emerging research directions, and intellectual foundations underlying studies on cross-cultural academic adaptation among international students. Covering a 25-year period (2001–2025), this bibliometric analysis provides a longitudinal perspective on the development and evolution of this research field.

4. Results

4.1. Publication trends

As shown in [Fig. 1](#), the annual distribution of publications on cross-cultural academic adaptation among international students indexed in the Web of Science database between 2001 and 2025 (N = 150) is presented. Overall, the findings demonstrate a clear long-term increase in research output, indicating growing scholarly interest in this area. During the early period (2001–2010), publication activity was minimal, with only one to two publications per year, reflecting the early stage of research on cross-cultural academic adaptation. A gradual increase in research output became evident from 2011 onward, with annual publications rising from four to five studies per year between 2012 and 2014. A more pronounced growth phase emerged after 2015. The number of publications increased from 13 in 2016 (8.67%) to 14 in 2018 (9.33%), indicating a growing consolidation of the field. In 2020, the publication count declined to nine studies (6.00%), which may be associated with disruptions to research activities during the COVID-19 pandemic. Following this temporary decline, research output rebounded steadily. The number of publications increased from 14 in 2021 (9.33%) to 13 in 2022 (8.67%) and 12 in 2023 (8.00%). Notably, the highest number of publications was recorded in 2025, with 20 studies (13.33%), highlighting the rapid expansion of research on cross-cultural academic adaptation among international students in recent years.

4.2. Top contributing countries

As shown in [Table 1](#), China is the most productive country in research on cross-cultural academic adaptation among international students indexed in the Web of Science database, contributing 46 publications (30.67%), which represents nearly one-third of the total research output. The United States ranked second with 22 publications (14.67%), followed closely by Australia with 20 publications

(13.33%). These three countries collectively account for a substantial share of the total publications, highlighting their dominant roles in this research field. England ranked fourth with 13 publications (8.67%), while Canada and Malaysia shared the fifth position, each contributing 9 publications (6.00%). The remaining countries in the top ten included Russia with 6 publications (4.00%), and Belgium,

Indonesia, the Netherlands, and Turkey, each contributing 5 publications (3.33%).

Overall, the distribution suggests that research on cross-cultural academic adaptation among international students is primarily concentrated in countries with large international student populations and well-established higher education systems.

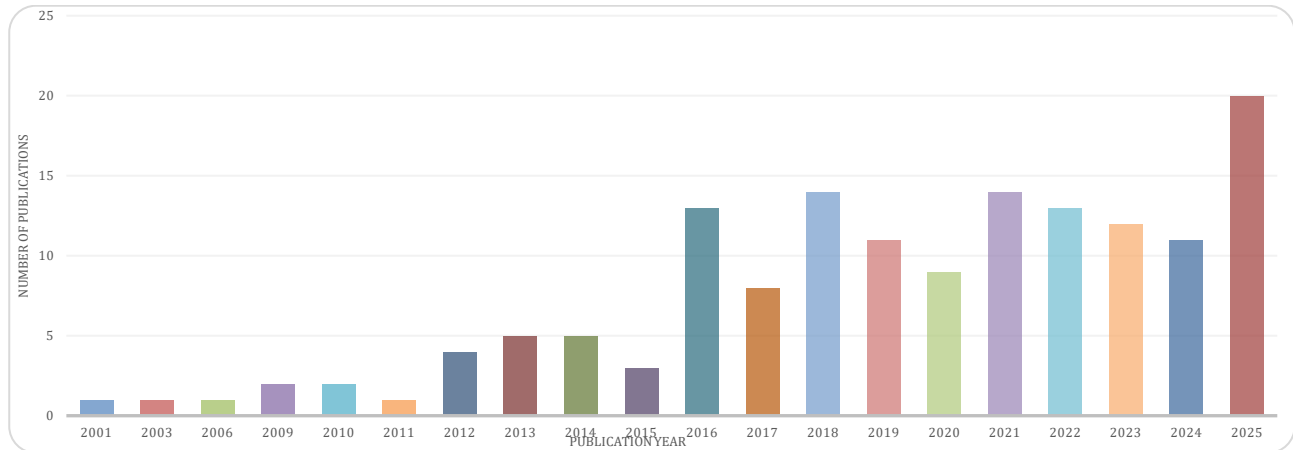


Fig. 1: Annual publication trends on cross-cultural academic adaptation among international students (2001-2025)

Table 1: Top contributing countries in research on cross-cultural academic adaptation

Rank	Country	Publications	Percentage
1	China	46	30.67
2	USA	22	14.67
3	Australia	20	13.33
4	England	13	8.67
5	Canada	9	6.00
5	Malaysia	9	6.00
7	Russia	6	4.00
8	Belgium	5	3.33
8	Indonesia	5	3.33
8	Netherlands	5	3.33
8	Turkey	5	3.33

4.3. Institutional contributions

As shown in Table 2, research on cross-cultural academic adaptation among international students is distributed across a diverse range of universities

worldwide. The Education University of Hong Kong emerged as the most productive institution, with 7 publications (4.67% of the total dataset). This was followed by Changchun University of Science and Technology, which contributed 5 publications (3.33%). Several institutions demonstrated comparable research productivity, each contributing three publications (2.00%), including City University of Hong Kong, Maastricht University, Monash University, Newcastle University (United Kingdom), Ningbo University, Northeast Normal University (China), The Open University (United Kingdom), and the University of Glasgow. The presence of these institutions across Asia, Europe, and Australia reflects the globally distributed nature of research activity in this field.

Table 2: Top 10 most productive institutions in cross-cultural academic adaptation research

Rank	Institution	Country/region	Number of publications	Percentage
1	The Education University of Hong Kong	Hong Kong, China	7	4.67
2	Changchun University of Science and Technology	China	5	2.00
3	City University of Hong Kong	Hong Kong, China	3	2.00
3	Maastricht University	Netherlands	3	2.00
3	Monash University	Australia	3	2.00
3	Newcastle University	United Kingdom	3	2.00
3	Ningbo University	China	3	2.00
3	Northeast Normal University	China	3	2.00
3	The Open University	United Kingdom	3	2.00
3	University of Glasgow	United Kingdom	3	2.00

4.4. Author productivity

As shown in Table 3, an analysis of author productivity indicates that research on cross-cultural academic adaptation among international students is driven by a relatively small group of highly productive scholars. Yu, B. H. emerged as the most prolific author, contributing 10 publications (6.67% of the total dataset). Cao, C., Meng, Q., and Rienties, B.

each contributed five publications (3.33%), demonstrating sustained scholarly engagement in this research domain. Several other authors, including Baumfield, V., Elliot, D. L., Mao, Y. Z., Reid, K., and Schartner, A., each contributed three publications (2.00%), while Ahmad, A. L. contributed two publications (1.33%). Overall, the distribution suggests that although the field includes a broad range of contributors, research output is

concentrated among a small number of core authors who play a central role in advancing scholarship on cross-cultural academic adaptation.

Table 3: Top 10 most productive authors in cross-cultural academic adaptation research

Rank	Author	Number of publications	Percentage
1	Yu BH	10	6.67
2	Cao C	5	3.33
2	Meng Q	5	3.33
2	Rienties B	5	3.33
3	Baumfield V	3	2.00
3	Elliot DL	3	2.00
3	Mao YZ	3	2.00
3	Reid K	3	2.00
3	Schartner A	3	2.00
4	Ahmad AL	2	1.33

4.5. Journal distribution

As shown in Table 4, an analysis of journal distribution indicates that research on cross-cultural academic adaptation among international students is concentrated in a relatively small number of specialized journals. The Journal of International Students emerged as the most productive outlet, publishing 17 articles (11.33% of the total dataset), followed closely by the International Journal of Intercultural Relations with 16 publications (10.67%). Other prominent journals include Frontiers in Psychology and Higher Education, each contributing seven articles (4.67%). Additional contributions were distributed across journals focusing on multilingualism, higher education research, and interdisciplinary perspectives, including Journal of Multilingual and Multicultural Development, Studies in Higher Education, and Sustainability. Overall, these findings suggest that scholarship on cross-cultural academic adaptation is primarily anchored in journals specializing in international education, intercultural relations, and higher education research.

Table 4: Top 10 most productive journals in cross-cultural academic adaptation research

Rank	Journal title	Number of publications	Percentage
1	Journal of International Students	17	11.33
2	International Journal of Intercultural Relations	16	10.67
3	Frontiers in Psychology	7	4.67
3	Higher Education	7	4.67
4	Journal of Multilingual and Multicultural Development	5	3.33
5	Higher Education Research & Development	3	2.00
5	INTED Proceedings	3	2.00
5	Studies in Higher Education	3	2.00
5	Sustainability	3	2.00
6	Asia Europe Journal	2	1.33

4.6. Subject areas

As shown in Table 5, an analysis of research areas indicates that studies on cross-cultural academic adaptation among international students are predominantly situated within the field of Educational Research, accounting for 82 publications

(54.67%). Psychology emerged as the second most prominent discipline, with 37 publications (24.67%), followed by Social Sciences with 24 publications (16.00%). Additional contributions were observed in Sociology (11.33%) and Linguistics (7.33%), reflecting the sociocultural and language-related dimensions of academic adaptation. Smaller proportions of studies were classified under Environmental Sciences and Ecology, Science and Technology, Communication, Engineering, and International Relations. Overall, the distribution highlights the interdisciplinary nature of this research field, integrating perspectives from education, psychology, and the broader social sciences.

Table 5: Distribution of research areas in cross-cultural academic adaptation research

Rank	Research area	Number of publications	Percentage
1	Educational research	82	54.67
2	Psychology	37	24.67
3	Social sciences	24	16.00
4	Sociology	17	11.33
5	Linguistics	11	7.33
6	Environmental sciences ecology	5	3.33
7	Science technology	4	2.67
8	Communication	3	2.00
8	Engineering	3	2.00
8	International relations	3	2.00

4.7. Keyword co-occurrence analysis

The keyword co-occurrence analysis conducted using VOSviewer revealed a well-structured and highly interconnected research landscape in the field of international students' academic and cross-cultural adjustment. As shown in Fig. 2, a total of 53 keywords meeting the minimum occurrence threshold were included in the analysis, resulting in a network comprising four distinct thematic clusters. Among all keywords, "international students" exhibited the highest frequency of occurrence ($n = 90$) and was positioned at the center of the network. This central positioning indicates that international students function as the conceptual hub of the research field, connecting multiple thematic strands related to psychological, sociocultural, and academic dimensions of adaptation. The remaining keywords were organized into four clusters based on their co-occurrence relationships, each represented by a different color and reflecting a major research theme.

Cluster 1: Psychosocial and Sociocultural Adjustment (Red Cluster). The red cluster focuses on the psychosocial and sociocultural aspects of adjustment, emphasizing the psychological challenges experienced by international students during the acculturation process. Prominent keywords in this cluster include academic adjustment, sociocultural adjustment, acculturative stress, psychosocial adjustment, personality, and depression. This cluster reflects a substantial body of research examining how international students cope with cultural transitions and the psychological strain

associated with adapting to a new academic and social environment. The frequent co-occurrence of acculturative stress and depression suggests that adjustment is often conceptualized as a psychologically demanding process, shaped by both contextual stressors and individual characteristics such as personality traits.

Cluster 2: Higher Education Context and Academic Outcomes (Green Cluster). The green cluster represents research centered on the higher education context and academic outcomes of international students. Key keywords include international students, higher education, academic performance, experiences, social support, culture, and graduate students. This cluster highlights studies that investigate how institutional environments, learning experiences, and social support mechanisms influence academic performance and overall adjustment. The prominence of international students within this cluster reinforces its role as the core theme of the field, while the strong links with academic performance and social support underscore the importance of institutional and contextual factors in shaping students' academic success.

Cluster 3: Learning Processes and Support Mechanisms (Blue Cluster). The blue cluster focuses on learning-related processes and supportive factors

that facilitate academic adaptation. Representative keywords include academic adaptation, education, motivation, perceptions, support, experience, and international students. This cluster reflects research that emphasizes the internal and interpersonal mechanisms underlying successful adjustment, such as motivation, perceptions of the learning environment, and access to support resources. Studies within this theme often conceptualize academic adaptation as an active learning process influenced by both psychological factors and educational practices.

Cluster 4: Cross-cultural adaptation and measurement (Yellow Cluster). The yellow cluster centers on cross-cultural and psychological adaptation, with a particular emphasis on attitudinal outcomes and measurement approaches. Key keywords include psychological adaptation, cross-cultural adaptation, satisfaction, attitudes, and scale. This cluster represents research grounded in theoretical and measurement-oriented perspectives, focusing on how adaptation is assessed and how psychological outcomes such as satisfaction and attitudes are conceptualized. The presence of scale as a prominent keyword indicates ongoing efforts to develop and validate instruments for measuring adaptation-related constructs among international students.

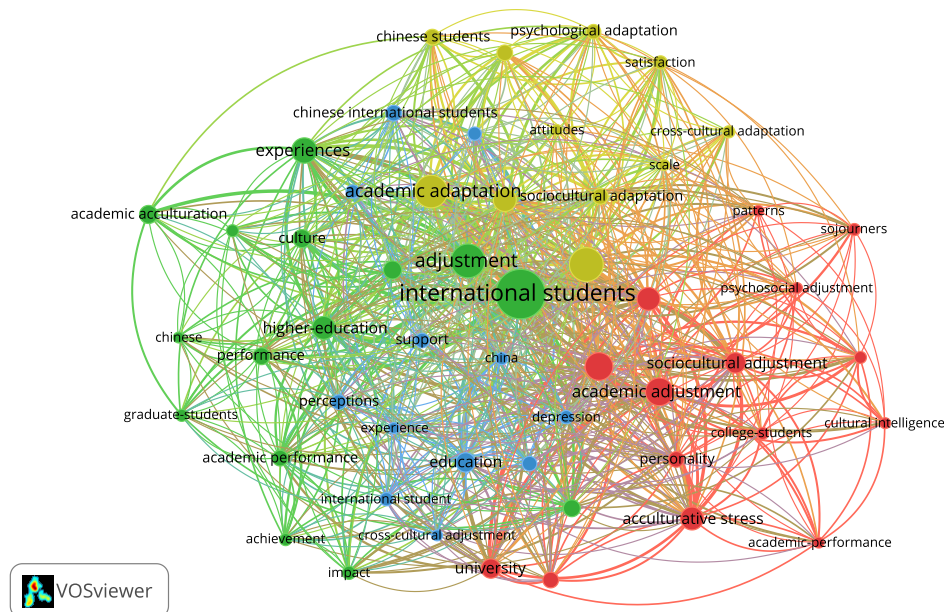


Fig. 2: Keyword co-occurrence network of research on international students' cross-cultural academic adaptation

4.8. Co-citation analyses

As shown in Table 6 and Fig. 3, the author co-citation analysis reveals a clearly structured intellectual landscape in which a small number of foundational scholars anchor the field of international students' cross-cultural adaptation. Ward and Berry emerge as the most influential figures, as evidenced by their exceptionally high total link strength, indicating that their works are consistently co-cited across diverse research streams.

Table 6: Top 10 most highly cited authors in the co-citation network

Rank	Author	Citations	Total link strength
1	Ward C	139	1,192
2	Berry JW	119	875
3	Yu BH	58	611
4	Gardner RC	26	400
5	Rienties B	50	377
6	Clement R	23	342
7	Tinto V	35	320
8	Cao C	38	317
9	Noels KA	20	288
10	Poyrazli S	47	277

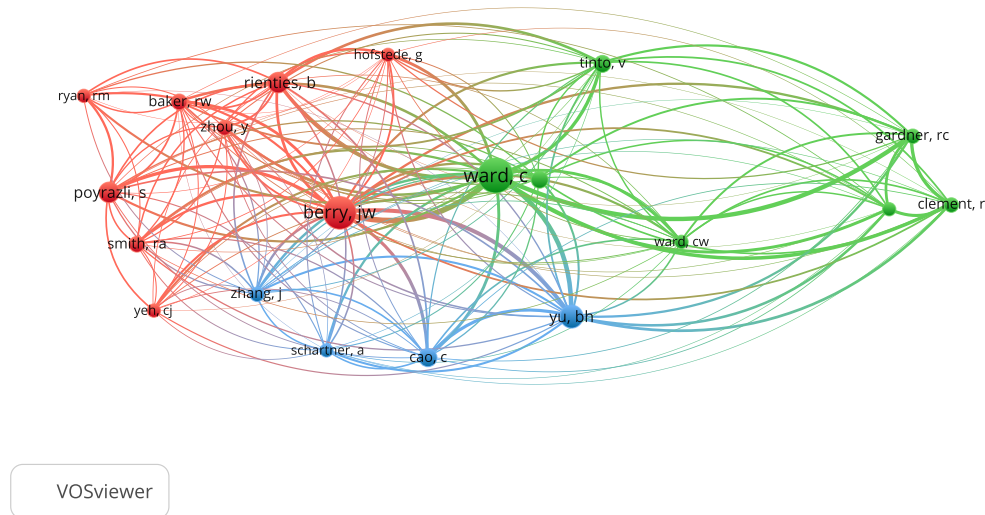


Fig. 3: Author co-citation network of research on international students' cross-cultural academic adaptation

4.9. Co-authorship patterns by authors

As shown in Fig. 4, the co-authorship analysis revealed a sparse collaboration network among the most productive authors. Only one direct collaborative relationship was identified, forming a small cluster consisting of Cao, C. and Meng, Q. The remaining authors, including Rienties, B. and Yu, B., appeared as isolated nodes, indicating independent publication patterns within the dataset. This suggests that, despite their scholarly influence, collaboration among leading authors in this research field remains limited.



Fig. 4: Co-authorship network of authors in research on international students' cross-cultural academic adaptation

4.10. Country-level research collaborations

As shown in Table 7 and Fig. 5, the country-level analysis indicates that China is the dominant contributor to this research field, with the highest number of publications (46 documents) and the highest citation count (680 citations). China also shows the strongest international collaboration intensity (TLS = 10), indicating its central role as a hub in the global co-authorship network. The USA (22 documents; 523 citations) and Australia (20

documents; 506 citations; TLS = 6) also emerge as major contributors, reflecting both substantial publication output and meaningful collaborative ties. Notably, England demonstrates high citation impact (600 citations) despite fewer publications (12 documents), suggesting strong scholarly influence within the field. In contrast, Russia and Turkey show minimal collaboration links (TLS = 0) and low citation impact, indicating limited integration into the international collaboration network. Moreover, the country co-authorship network is divided into three clusters, indicating distinct patterns of international research collaboration. Countries within the same cluster demonstrate stronger co-authorship ties with one another than with countries in other clusters, reflecting shared research agendas, international student mobility patterns, or established academic partnerships.

Cluster 1: Asia-Pacific-oriented Collaboration Hub. This cluster is centered on China, which serves as the dominant hub in terms of publication output and collaborative link strength. The strong connections between China and countries such as Australia and Canada reflect well-established academic pathways for international students, particularly Chinese students studying abroad. Malaysia also appears in this cluster, suggesting its emerging role as a regional education hub and a host country for international students in Asia. Overall, this cluster represents research closely associated with international student mobility flows from China to major English-speaking and regional host countries.

Cluster 2: Western and Transnational Research Collaboration. This cluster highlights a network anchored by the United States and England, countries known for their strong research infrastructure and high citation impact. The inclusion of the Netherlands reflects its influential role in educational and cross-cultural research despite a smaller publication volume. Indonesia's linkage to this cluster suggests growing collaboration with Western institutions, possibly

through comparative or regional studies on international students. This cluster illustrates a diversified and transnational pattern of research collaboration.

Cluster 3: Peripheral or Independent Contributor. Belgium forms a separate cluster, indicating relatively limited co-authorship links with other countries in the dataset. Although Belgium shows a moderate citation count, its lower total link strength suggests that its contributions are relatively independent or specialized, rather than embedded within large international collaboration networks.

Table 7: Top contributing countries in international student research

Rank	Country	Documents	Citations	Total link strength
1	China	46	680	10
2	United States	22	523	3
3	Australia	20	506	6
4	England	12	600	3
5	Canada	9	116	3
6	Malaysia	9	77	3
7	Russia	6	4	0
8	Netherlands	5	395	5
9	Indonesia	5	41	3
10	Belgium	5	141	2
11	Turkey	5	53	0

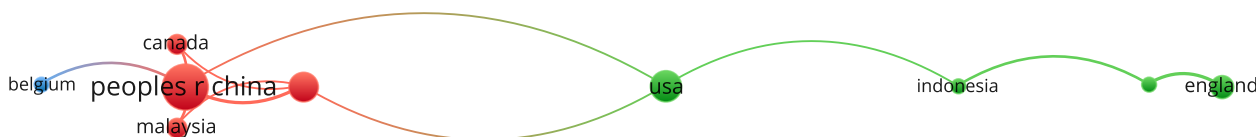


Fig. 5: International collaboration patterns by country in studies of international students' cross-cultural academic adaptation

5. Discussion

5.1. Publication trends and the expansion of international student mobility

The publication trends observed in this review closely mirror the broader expansion and transformation of international student mobility (ISM) as a defining feature of higher education internationalization. Research output on cross-cultural academic adaptation remained limited during the early 2000s, followed by a gradual increase and a marked acceleration after the mid-2010s. This trajectory corresponds with the global growth of international student numbers, which expanded from fewer than one million students in the late 1970s to nearly seven million worldwide by the early 2020s. The temporary decline in publication output around 2020 coincides with disruptions to global student mobility caused by the COVID-19 pandemic. However, the rapid rebound and subsequent peak in publications after 2021 suggest renewed scholarly attention in response to post-pandemic challenges. These include hybrid and digital learning environments, changing mobility patterns, and heightened institutional responsibility for supporting international students' academic adjustment. This pattern aligns with broader transformations in ISM, where geopolitical shifts, economic realignments, and digitalization increasingly shape both student mobility and academic research agendas (Glass and Minaeva, 2025).

Moreover, the findings of this review indicate a notable shift in the geographic structure of knowledge production on cross-cultural academic adaptation. Research output is no longer dominated solely by traditional English-speaking destination countries but is increasingly led by major international student-sending and emerging host countries. This pattern reflects broader

transformations in international education markets, where academic adaptation is shaped by multi-directional student mobility rather than unidirectional flows toward Western destinations. In particular, China emerges as the largest contributor to the literature, accounting for a substantial proportion of publications. This prominence suggests a growing scholarly emphasis on understanding academic adaptation from the perspective of students transitioning across diverse educational systems, including return mobility and regional study destinations. Such a shift challenges earlier host-centric approaches that primarily examined international students' adjustment within Western academic environments.

Beyond China, the presence of countries such as Malaysia and Turkey among the top contributing nations further illustrates the diversification of research contexts identified in this review. As shown in Table 1, these countries account for a notable share of publications, suggesting an expanding scholarly focus on cross-cultural academic adaptation within non-Western and semi-peripheral higher education systems. This pattern aligns with broader structural shifts in international student mobility toward a more multipolar configuration, as documented by Glass and Cruz (2023). Their findings indicate that the relative dominance of traditional destination countries has declined over time, while planned and emerging education hubs, including Turkey, South Korea, and Malaysia, have gained increasing influence within global mobility networks. These shifts are driven by strategic investments in transnational education, regional mobility schemes, and the cultural and geographic proximity offered by emerging destinations. In this context, the growing research output from Malaysia and Turkey suggests that cross-cultural academic adaptation is increasingly examined within alternative academic and institutional environments, rather than being confined to Anglo-centric host

systems. Such diversification enriches the field by incorporating perspectives shaped by varied academic cultures, policy frameworks, and student mobility patterns, thereby contributing to a more globally embedded understanding of academic adaptation.

5.2. Disciplinary perspectives

The findings of this bibliometric review clearly indicate that educational research (54.67%) and psychology (24.67%) constitute the two dominant disciplinary pillars in the study of cross-cultural academic adaptation. This concentration suggests that academic adaptation has primarily been conceptualized through the lenses of learning processes and psychological functioning, positioning adaptation as both an educational and an intrapersonal challenge. Furthermore, cross-cultural academic adaptation does not occur in isolation but emerges at the intersection of multiple disciplinary perspectives. The inclusion of sociology and linguistics highlights that adaptation is not merely an individual journey but is deeply embedded in social support networks and language proficiency, which serve as critical mediators for successful transition. These overlapping disciplinary lenses underscore the complexity of cross-cultural academic adaptation as a multidimensional phenomenon that cannot be adequately captured through a single disciplinary framework.

Although education and psychology remain the dominant foundations, the presence of science and technology-related fields, albeit in smaller proportions, signals an emerging shift in research focus. The inclusion of science and technology topics suggests that academic adaptation is increasingly examined in relation to digital learning environments, online pedagogies, and technology-mediated academic experiences. This emerging interdisciplinary direction aligns with recent scholarship highlighting the role of digital transformation in reshaping international student mobility (Chang and Gomes, 2017; Chang et al., 2022).

As digital and hybrid learning modalities become more prevalent, cross-cultural academic adaptation is no longer confined to traditional face-to-face contexts but increasingly unfolds within virtual and technology-rich learning environments. Consequently, future research should further explore how digital literacy and technological interfaces may function as emerging dimensions of the cross-cultural adjustment process.

5.3. Interpreting thematic clusters through Kim's integrative theory of cross-cultural adaptation

To provide a theoretical interpretation of the bibliometric findings, Kim's integrative theory of cross-cultural adaptation (Kim, 2001; 2017) was employed as a conceptual lens for understanding the relationships among the identified thematic clusters.

The keyword co-occurrence analysis reveals a highly interconnected thematic structure comprising four complementary clusters that capture key dimensions of research on international students' cross-cultural academic adaptation. When interpreted through Kim's Integrative Theory of Cross-Cultural Adaptation (Kim, 2001; 2017), these clusters collectively reflect a theoretically grounded adaptation process characterized by a dynamic stress-adaptation-growth cycle. Within this framework, environmental conditions are represented by clusters emphasizing institutional context, culture, and social support (Gómez et al., 2014; Mesidor and Sly, 2016; Rienties et al., 2012), which shape the opportunities and constraints international students encounter in host academic settings. These contextual factors interact with individual predispositions and preparedness, influencing how students perceive and respond to academic and sociocultural demands. Simultaneously, the clusters focusing on psychosocial adjustment, acculturative stress, and learning-related processes align with the stress-adaptation mechanisms described in Kim's theory (Elliot et al., 2016; Yu and Shen, 2012; Yu and Wright, 2017; Young and Schartner, 2014; Zhang et al., 2010), whereby exposure to unfamiliar academic norms and cultural expectations generates psychological strain. In Kim's framework, such strain functions as a catalyst for adaptive learning and intercultural growth, prompting students to develop coping strategies and new forms of meaning-making. Communication, both interpersonal and institutional, plays a central role in facilitating this adjustment process by reducing uncertainty and supporting integration within the host academic environment.

Furthermore, the clusters highlighting academic performance and satisfaction resonate with Kim's notion of intercultural transformation and functional fitness. Rather than representing isolated outcomes, these indicators reflect the cumulative outcomes of sustained interactions between international students and their academic environments. Academic success, psychological well-being, and attitudinal adjustment therefore emerge as interconnected manifestations of adaptation (Kwek et al., 2013; Rienties and Tempelaar, 2013). This progression reflects a gradual internalization of host academic norms and increasing competence in navigating cross-cultural academic contexts. Overall, interpreting these keyword clusters through Kim's integrative framework reinforces the view of cross-cultural academic adaptation as a multidimensional and evolving process shaped by environmental conditions, communicative engagement, and psychological transformation. This theoretical alignment underscores the suitability of Kim's model as a unifying lens for synthesizing diverse strands of research and highlights its continued relevance for understanding international students' academic journeys in increasingly globalized and complex higher education environments.

5.4. Influential scholars in the intellectual structure of cross-cultural adaptation

The author co-citation analysis reveals that Ward, C. occupies a central position within the intellectual structure of research on international students' cross-cultural adaptation, as indicated by the highest total link strength in the network (TLS = 1,192). This prominence suggests that Ward's work functions not merely as frequently cited scholarship but as a conceptual node linking multiple strands of adaptation research. Such centrality reflects the foundational role of Ward's scholarship in shaping how cross-cultural adaptation has been theorized, operationalized, and empirically examined over time. A key explanation for this central position lies in the seminal contribution of Ward's work in conceptualizing adaptation as a multidimensional process. By distinguishing between psychological adaptation and sociocultural adaptation, this framework clarified previously fragmented understandings of culture shock and adjustment (Searle and Ward, 1990). The two-domain perspective enabled researchers to examine emotional well-being, stress, and life satisfaction alongside behavioral competence, social skills, and everyday functioning within host cultures. As a result, this line of research has been consistently co-cited across studies addressing mental health, learning processes, communication, and academic engagement, thereby generating strong co-citation connections with scholars from diverse theoretical traditions. The integrative Affective, behavioral, and cognitive (ABC) model of acculturation further strengthened the influence of this scholarship within the field (Ward, 2001). By synthesizing affective (stress and coping), behavioral (cultural learning), and cognitive (identity and social identification) dimensions of adaptation, the model offered a comprehensive lens capable of accommodating varied research emphases. Consequently, this framework is frequently cited alongside acculturation theorists such as Berry, educational scholars examining academic integration, and psychologists investigating stress and well-being. This integrative capacity helps explain the dense co-citation patterns observed between Ward and other influential authors in the network, contributing to the exceptionally high total link strength observed. Beyond theoretical development, the influence of this scholarship is further reinforced through the development and widespread application of key measurement instruments, most notably the Sociocultural Adaptation Scale (SCAS) (Ward and Kennedy, 1999). The SCAS was developed and psychometrically evaluated using data compiled from a large and diverse program of research, including multiple cross-sectional samples, longitudinal designs, and paired comparisons between sojourning and sedentary populations. This extensive empirical foundation established the reliability and cross-cultural applicability of the scale across diverse contexts, enabling systematic

examination of patterns of sociocultural adaptation over time. Importantly, the scale's application facilitated empirical investigation of the relationship between sociocultural adaptation and psychological adjustment, thereby strengthening conceptual links between behavioral competence and emotional well-being. The widespread adoption, adaptation, and validation of the SCAS across international education and cross-cultural psychology research has sustained the influence of this work and reinforced its central position within the co-citation network.

The author co-citation analysis identifies John W. Berry as the second most influential scholar shaping the intellectual foundation of cross-cultural adaptation research, as reflected by a high citation count and a substantial total link strength (TLS = 875). This prominence indicates that Berry's scholarship provides one of the primary theoretical frameworks through which adaptation processes are interpreted and compared across studies. A major source of Berry's influence lies in the formulation of the four acculturation strategies, integration, assimilation, separation, and marginalization, which offer a parsimonious yet powerful typology for understanding how individuals negotiate cultural continuity and change (Berry, 1997; 2005). This framework has been widely adopted in studies of international students and migrants, as it enables systematic differentiation of adaptation patterns and associated outcomes. In particular, the integration strategy is frequently associated with more favorable psychological and sociocultural outcomes, whereas marginalization is consistently linked to heightened stress and maladjustment. The conceptual clarity and empirical applicability of this typology have contributed to its widespread adoption across psychological, sociological, and educational studies of cross-cultural adaptation, leading to its frequent co-citation alongside a wide range of empirical investigations.

5.5. Leading countries and patterns of international collaboration

The country-level collaboration analysis reveals distinct structural patterns in the global production of knowledge on international students' cross-cultural academic adaptation. Rather than being evenly distributed, research activity and influence are concentrated within a small number of dominant countries and collaboration clusters, reflecting the interplay between global student mobility, academic infrastructure, and research specialization. The prominence of China reflects not only its large population of outbound international students but also its growing role as a major knowledge producer and collaborative hub within this research field. With the highest publication volume and collaboration intensity, China functions as a key empirical center, strongly shaping research agendas through studies focused on Chinese international students' adaptation experiences. This pattern underscores the extent to which global student mobility flows,

particularly those involving Chinese students, shape the empirical and thematic orientation of cross-cultural academic adaptation research.

At the same time, the discrepancy between publication volume and citation impact across countries highlights differentiated roles within the global research ecosystem. While China leads in output and collaborative reach, countries such as England and the Netherlands exert considerable intellectual influence despite producing fewer publications. This suggests a stronger emphasis on theory development, conceptual frameworks, and methodological innovation in these contexts, positioning them as important contributors to the theoretical advancement of the field. These dynamics are further reflected in the country co-authorship clusters. The first cluster, centered on China and closely linked with host countries such as Australia, Canada, and Malaysia, represents an Asia-Pacific-oriented collaboration network shaped by established patterns of international student mobility. The second cluster, anchored by the United States and England, reflects a more transnational collaboration pattern characterized by strong citation impact and theoretical influence. In contrast, the third cluster, represented by Belgium, indicates a more independent or specialized contribution pattern, with moderate citation impact but limited integration into broader international collaboration networks. Overall, these findings suggest that cross-cultural academic adaptation research operates within a differentiated global knowledge system, in which empirically driven mobility-focused research and theory-oriented scholarship play distinct yet interconnected roles. This uneven distribution highlights the need for broader cross-national collaboration to incorporate more diverse academic contexts and student experiences in future research.

Despite the contributions of this study in mapping the intellectual structure and thematic development of research on international students' cross-cultural academic adaptation, several limitations should be acknowledged. First, the analysis was limited to publications indexed in the Web of Science Core Collection database, which may not capture all relevant studies available in other databases. Second, only English-language journal and review articles were included, potentially excluding valuable contributions published in other languages or document types. Furthermore, bibliometric methods primarily identify publication patterns and intellectual structures and may not fully capture the contextual and qualitative depth of individual studies.

Therefore, the findings should be interpreted as reflecting the indexed international literature represented in the selected database. Future bibliometric studies may benefit from incorporating multiple databases and multilingual sources, as well as combining bibliometric techniques with systematic reviews or qualitative content analyses, to provide a more comprehensive understanding of the field.

6. Conclusion

This bibliometric analysis reveals clear structural and thematic patterns in research on international students' cross-cultural academic adaptation. The literature is primarily centered on psychosocial and sociocultural adjustment, acculturative stress, academic performance, and institutional and social support, while knowledge production remains concentrated among a small number of influential authors, countries, and collaboration networks. China emerges as a central empirical and collaborative hub, reflecting the strong research focus on Chinese international students in major host countries. From a practical perspective, universities should strengthen institutional and social support mechanisms, including academic mentoring, peer-support networks, and intercultural engagement initiatives, to reduce acculturative stress and promote successful academic adaptation.

Moreover, building on the structural and thematic patterns identified in this review, several directions for future research can be proposed. First, given the strong concentration of empirical studies on Chinese international students in Anglophone and Asia-Pacific host contexts, future research should expand to underexplored non-Anglophone and emerging destinations through comparative designs that examine how cross-cultural academic adaptation varies across host-country contexts. Second, while dominant research themes have emphasized psychosocial adjustment, acculturative stress, and academic performance, further studies are needed to examine how these dimensions interact over time, particularly through longitudinal and mixed-methods designs. In addition, although science- and technology-related themes remain relatively underrepresented in the current bibliometric landscape, the rapid advancement of artificial intelligence (AI) in higher education warrants greater scholarly attention. The increasing use of AI-powered learning platforms, academic support tools, and automated feedback systems has the potential to reshape international students' learning experiences, academic engagement, and adaptation processes. Future research should therefore explore how AI-mediated learning environments influence cross-cultural academic adaptation, particularly in relation to self-regulated learning, academic stress, language support, and students' sense of belonging. Examining AI as both a contextual factor and an adaptive resource would provide valuable insights into how technological transformation intersects with psychological and sociocultural dimensions of international student adaptation. Third, the unequal distribution of international research collaboration highlights the need for more inclusive cross-national partnerships, particularly involving countries that currently occupy peripheral positions in the global research network. Such collaboration would enable more diverse academic contexts and adaptation experiences to be represented, reducing the

dominance of a limited number of mobility pathways and theoretical perspectives. Finally, future research would benefit from integrating established adaptation theories with emerging perspectives, including social network and digitally mediated learning frameworks, to better capture the evolving nature of cross-cultural academic adaptation in increasingly globalized and technology-rich higher education environments.

List of abbreviations

ABC	Affective, behavioral, and cognitive
AI	Artificial intelligence
ASEAN	Association of Southeast Asian Nations
IHE	Internationalization of higher education
ISM	International student mobility
OECD	Organisation for Economic Co-operation and Development
SCAS	Sociocultural adaptation scale
TLS	Total link strength
WoSCC	Web of Science Core Collection

Compliance with ethical standards

Conflict of interest

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References

- Alharbi E and Smith A (2018). A review of the literature on stress and wellbeing among international students in English-speaking countries. *International Education Studies*, 11(5): 22-44. <https://doi.org/10.5539/ies.v11n6p22>
- Banjong DN (2015). International students' enhanced academic performance: Effects of campus resources. *Journal of International Students*, 5(2): 132-142. <https://doi.org/10.32674/jis.v5i2.430>
- Berry JW (1997). Immigration, acculturation, and adaptation. *Applied Psychology*, 46(1): 5-34. <https://doi.org/10.1111/j.1464-0597.1997.tb01087.x>
- Berry JW (2005). Acculturation: Living successfully in two cultures. *International Journal of Intercultural Relations*, 29(6): 697-712. <https://doi.org/10.1016/j.ijintrel.2005.07.013> **PMCID:PMC12408779**
- Cao C, Zhu C, and Meng Q (2021). Chinese international students' coping strategies, social support resources in response to academic stressors: Does heritage culture or host context matter? *Current Psychology*, 40: 242-252. <https://doi.org/10.1007/s12144-018-9929-0>
- Chang CY, Panjaburee P, Lin HC, Lai CL, and Hwang GH (2022). Effects of online strategies on students' learning performance, self-efficacy, self-regulation and critical thinking in university online courses. *Educational Technology Research and Development*, 70: 185-204. <https://doi.org/10.1007/s11423-021-10071-y>
- Chang S and Gomes C (2017). Digital journeys: A perspective on understanding the digital experiences of international students. *Journal of International Students*, 7(2): 347-466. <https://doi.org/10.32674/jis.v7i2.385>
- Church AT (1982). Sojourner adjustment. *Psychological Bulletin*, 91(3): 540-572. <https://doi.org/10.1037/0033-2909.91.3.540>

- Elliot DL, Reid K, and Baumfield V (2016). Beyond the amusement, puzzlement and challenges: An enquiry into international students' academic acculturation. *Studies in Higher Education*, 41(12): 2198-2217. <https://doi.org/10.1080/03075079.2015.1029903>
- Eze SC and Inegbedion H (2015). Key factors influencing academic performance of international students' in UK universities: A preliminary investigation. *British Journal of Education*, 3(5): 55-68. <https://doi.org/10.37745/bje.vol3.no5.P55-68.2013>
- Glass CR and Cruz NI (2023). Moving towards multipolarity: Shifts in the core-periphery structure of international student mobility and world rankings (2000-2019). *Higher Education*, 85: 415-435. <https://doi.org/10.1007/s10734-022-00841-9> **PMid:35370301 PMCID:PMC8962224**
- Glass CR and Minaeva E (2025). Four eras of international student mobility (1945-2025): Multipolar securitization, strategic education blocs, and the rise of middle powers. *Journal of Global Higher Education*, 1(1): 69-88.
- Gómez E, Urzúa A, and Glass CR (2014). International student adjustment to college: Social networks, acculturation, and leisure. *Journal of Park and Recreation Administration*, 32(1): 7-25.
- Kim YY (2001). *Becoming intercultural: An integrative theory of communication and cross-cultural adaptation*. SAGE Publications, Thousand Oaks, USA. <https://doi.org/10.4135/9781452233253>
- Kim YY (2017). Cross-cultural adaptation. In: Powers M (Ed.), *Oxford Research Encyclopedia of Communication*. Oxford University Press, New York, USA. <https://doi.org/10.1093/acrefore/9780190228613.013.121>
- Knight J (2021). Higher education internationalization: Concepts, rationales, and frameworks. *Revista REDALINT. Universidad, Internacionalización E Integración Regional*, 1(1): 65-88.
- Kwek A, Bui HT, Rynne J, and So KKF (2013). The impacts of self-esteem and resilience on academic performance: An investigation of domestic and international hospitality and tourism undergraduate students. *Journal of Hospitality & Tourism Education*, 25(3): 110-122. <https://doi.org/10.1080/10963758.2013.826946>
- Lertpusit S (2022). Chinese students in Thai higher education institutions and the transformation of graduate migrants: Characteristics, practices, and transitional migration. *WIMAYA*, 3(01): 18-26. <https://doi.org/10.33005/wimaya.v3i01.63>
- Li L and Peng W (2019). Transitioning through social media: International students' SNS use, perceived social support, and acculturative stress. *Computers in Human Behavior*, 98: 69-79. <https://doi.org/10.1016/j.chb.2019.03.011>
- Lou NM (2021). Acculturation in a postcolonial context: Language, identity, cultural adaptation, and academic achievement of Macao students in Mainland China. *International Journal of Intercultural Relations*, 85: 213-225. <https://doi.org/10.1016/j.ijintrel.2021.10.004>
- Mangmeechai A and Jirapornvaree I (2019). Factors influencing ASEAN and international students of higher education programs in Thailand. *Asian Social Science*, 15(9): 67-81. <https://doi.org/10.5539/ass.v15n9p67>
- Mesidor JK and Sly KF (2016). Factors that contribute to the adjustment of international students. *Journal of International Students*, 6(1): 262-282. <https://doi.org/10.32674/jis.v6i1.569>
- OECD (2025). What are the key trends in international student mobility? *Education Indicators in Focus*, No. 88. OECD Publishing, Paris, France. <https://doi.org/10.1787/2a423a76-en>
- Passas I (2024). Bibliometric analysis: The main steps. *Encyclopedia*, 4(2): 1014-1025. <https://doi.org/10.3390/encyclopedia4020065>

- Rienties B and Tempelaar D (2013). The role of cultural dimensions of international and Dutch students on academic and social integration and academic performance in the Netherlands. *International Journal of Intercultural Relations*, 37(2): 188-201.
<https://doi.org/10.1016/j.ijintrel.2012.11.004>
- Rienties B, Beusaert S, Grohnert T, Niemantsverdriet S, and Kommers P (2012). Understanding academic performance of international students: The role of ethnicity, academic and social integration. *Higher Education*, 63(6): 685-700.
<https://doi.org/10.1007/s10734-011-9468-1>
- Searle W and Ward C (1990). The prediction of psychological and sociocultural adjustment during cross-cultural transitions. *International Journal of Intercultural Relations*, 14(4): 449-464. [https://doi.org/10.1016/0147-1767\(90\)90030-Z](https://doi.org/10.1016/0147-1767(90)90030-Z)
- Soheili F and Lanz M (2025). Psychological adaptation of international students in higher education: A bibliometric analysis. *Current Psychology*, 44: 10670-10678.
<https://doi.org/10.1007/s12144-025-07926-5>
- Ward C (2001). The A, B, Cs of acculturation. In: Matsumoto D (Ed.), *The handbook of culture and psychology*: 411-445. Oxford University Press, New York, USA.
- Ward C and 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)
- Weng Y (2025). Singapore's global education hub ambitions: Government and institution strategies and practices. *Education and Lifelong Development Research*, 2(1): 11-22.
<https://doi.org/10.46690/elder.2025.01.02>
- Wong R and Hyde C (2024). The socio-cultural experience of Chinese international students in Australian schools: Challenges and opportunities. *Educational and Developmental Psychologist*, 41(2): 202-211.
<https://doi.org/10.1080/20590776.2024.2371131>
- Young TJ and Schartner A (2014). The effects of cross-cultural communication education on international students' adjustment and adaptation. *Journal of Multilingual and Multicultural Development*, 35(6): 547-562.
<https://doi.org/10.1080/01434632.2014.884099>
- Yu B and Shen H (2012). Predicting roles of linguistic confidence, integrative motivation and second language proficiency on cross-cultural adaptation. *International Journal of Intercultural Relations*, 36(1): 72-82.
<https://doi.org/10.1016/j.ijintrel.2010.12.002>
- Yu B and Wright E (2017). Academic adaptation amid internationalisation: The challenges for local, mainland Chinese, and international students at Hong Kong's universities. *Tertiary Education and Management*, 23(4): 347-360. <https://doi.org/10.1080/13583883.2017.1356365>
- Zhang H and Li M (2022). Factors affecting Chinese short-term international students' cross-cultural adaptation in psychology, learning, and life. *Discrete Dynamics in Nature and Society*, 2022: 5977713.
<https://doi.org/10.1155/2022/5977713>
- Zhang J, Mandl H, and Wang E (2010). Personality, acculturation, and psychosocial adjustment of Chinese international students in Germany. *Psychological Reports*, 107(2): 511-525.
<https://doi.org/10.2466/07.09.11.17.PR0.107.5.511-525>
PMid:21117478
- Zhao Z and Harji MB (2024). Systematic review of global research on acculturation of international students (2003-2023). *Journal of International Students*, 14(3): 427-447.
<https://doi.org/10.32674/jis.v14i3.6690>