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Need-Supportive Educational Contexts During Cultural Transitions: A Systematic Review of International Students' SDT-Based Experiences

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ABSTRACT: *International students' adjustment and learning experiences have become a central focus in global higher education, yet research on this topic remains fragmented across disciplines. This systematic review, guided by self-determination theory (SDT), synthesizes empirical studies published between 2010 and 2025 that examine how international students' basic psychological needs for autonomy, competence, and relatedness affect their academic adjustment, motivation, and well-being. In accordance with the PRISMA guidelines, 35 peer-reviewed studies identified from major academic databases indicated that challenges related to language, academics, and institutional navigation frequently undermine international students' sense of competence, constrain relatedness, and increase isolation. Across studies, the fulfillment of basic psychological needs consistently affects persistence, improves mental health, and promotes more successful cultural and educational adjustment. Nevertheless, the literature remains theoretically fragmented, with limited integration of SDT and cross-cultural perspectives. This review synthesizes evidence across three support domains and outlines implications for future research.*

Keywords: self-determination theory, relatedness, educational transition, motivation, cultural mismatch, systematic review

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INTRODUCTION

Recent changes in the demographics of higher education in the United States have had a significant effect on international students. The enrollment rate of international students in the United States has reached an all-time high, with more than 1.1 million students currently enrolled in higher education institutions (Institute of International Education, 2024). The surge in international students on campuses has led to a noticeable rise in cultural diversity within U.S. higher education institutions and has resulted in more interactions and conflicts between students from different cultural backgrounds. International students can encounter distinctive challenges in adapting to their studies in a foreign country. These challenges include cultural mismatches, language communication difficulties, novel teaching structures, and psychological adjustment issues (Andrade, 2006; Parks & Raymond, 2004; Sherry et al., 2010; Stephens et al., 2012).

Compared with those from individualistic cultures, international students from collectivist cultural backgrounds face even greater adjustment challenges. First, international students may experience a cultural mismatch during their adaptation, as international students from non-Western backgrounds experience a more complex and nonlinear integration process (Leong, 2015; Rienties et al., 2012). Second, an educational transition represents another critical but often overlooked challenge (Rienties et al., 2012). When students shift from a traditional teacher-led learning environment to a more student-centered, autonomy-focused Western university teaching model, they often experience additional adaptation pressures and a heightened sense of displacement (Briggs et al., 2012; Kember, 2016). Therefore, for these international students, entering an overseas university is a personal investment influenced by the schools' cultural and educational systems, all of which contribute to a major social migration.

To navigate these challenges, support from multiple sources, such as teachers, peers, institutions, and families, has been identified as critical for international students' successful adaptation and academic achievement (Antonio & Baek, 2022; Schell, 2023; Singh, 2023). Despite the growing body of research examining support for international students, the existing literature remains largely descriptive and atheoretical. Moreover, existing studies largely focus on language barriers, stressors and psychological issues, and self-motivation (Andrade, 2006; Cho et al., 2023; Leong, 2015; Misra et al., 2003). Furthermore, these findings are often fragmented across disparate conceptual frameworks, making it difficult to understand how emotional connection and need support directly shape international students' learning motivation and academic achievement during this critical transition stage.

One theoretical framework, self-determination theory (SDT; Ryan & Deci, 2017), with its emphasis on autonomy, competence, and relatedness, provides a valuable context with which to better understand international students' transitions. Importantly, self-determination theory also acknowledges that the specific practices through which needs are satisfied may vary across cultural contexts (Ryan & Deci, 2017). This framework illuminates international students' transitions and adjustment, making SDT particularly relevant for examining support in cross-cultural educational settings.

Therefore, this systematic review aims to address two interconnected objectives: First, the present review aims to synthesize the existing research on support and outcomes for international students, particularly those transitioning from more collectivist to more individualist educational environments, and to examine the extent to which these findings align with self-determination theory's conceptualization of need support. Second, this systematic review aims to identify theoretical and empirical gaps in the current literature and to suggest avenues for further research.

Research Questions

The following research questions are addressed in this systematic review:

RQ1: What types of need support (family, institution, teacher, peer) are critical for assisting international students in adapting to culturally mismatched educational transitions? (Note: The present review focuses primarily on transitions from a more collectivist higher educational environment to a more individualistic higher educational environment.)

RQ2: What outcomes (motivational, personal engagement, well-being, learning, achievement, adjustment) are associated with different forms of need support?

THEORETICAL FRAMEWORK AND REVIEW OF THE LITERATURE

Individualism vs. collectivism and cultural mismatch theory

To fully understand the cultural differences experienced by international students, we must first examine the broader cultural frameworks that shape educational practices and interpersonal expectations. Triandis and Gelfand (1998) argued that there is a fundamental difference between individualism and collectivism. In individualistic cultures, personal attitudes take precedence over social norms, which manifests as an emphasis on the self as an independent entity and encourages self-expression, personal choice, and self-realization. In contrast, collectivist cultures place greater value on social norms than on personal attitudes. Collectivists are more traditional, emphasizing sociality and interdependence, and clearly prioritize collective needs over individual desires, often requiring individuals to sacrifice for the benefit of the group. Importantly, these cultural orientations shape not only values but also the specific practices through which

basic psychological needs (autonomy, competence, and relatedness) are understood and supported (Chirkov et al., 2003).

Previous research has suggested that cultural orientations are not easily modified and that the pursuit of autonomy and the value of harmonious and interdependent relationships are often in conflict in collectivist societies (Triandis & Gelfand, 1998; Cross & Gore, 2003). However, as globalization and intercultural contact intensify, emerging research suggests that individuals increasingly exhibit hybrid cultural tendencies (Kuang et al., 2024; Lin & Yang, 2025). Stephens et al. (2012) described this phenomenon using the theory of “cultural mismatch”, which explores the tension between students' cultural backgrounds and the mainstream norms of their current educational institutions. For international students, this mismatch is particularly acute in their culturally shaped expectations about learning, relationships, and achievements that may be unrecognized, undervalued, or actively delegitimized (Lin & Yang, 2025; Schell, 2023). Critically, cultural mismatch does not merely create discomfort; it systematically undermines the satisfaction of basic psychological needs, transforming what could be strengths into academic disadvantages and psychological distress (Stephens et al., 2012).

The cultural mismatch between collectivist and individualistic systems manifests across multiple levels. On a relational level, students from collectivist cultural backgrounds expect teachers to provide clear direction, emotional attention, and relational investment that align with their need for relatedness and their culturally specific understanding of autonomy support (Schell, 2023). These expectations come from cultural traditions such as filial piety, where care is shown through guidance and when students respond with hard work (Lin & Yang, 2025; Pan et al., 2013). However, when these students enter individualistic educational settings, they encounter faculty members who interpret their roles through frameworks emphasizing “independent exploration” and “self-determination” (Schell, 2023). Although this approach is intended to support autonomy, it paradoxically thwarts both relatedness needs and competence needs. Educational institutions may further exacerbate this mismatch, labeling them “deviations”, “misunderstandings”, or “nonstandard practices”, and treating students' cultural behaviors as problems rather than resources (Elmesky & Marcucci, 2023). In terms of classroom interactions, Western norms that value assertiveness, open debate, and self-promotion often clash with collectivist values of harmony and humility. This puts international students in a difficult position, as following their own cultural habits can make them feel invisible, but adopting new norms can feel unnatural (Matsunaga et al., 2021).

Transition periods

Cultural mismatch theory reveals how the transition from collectivist to individualistic educational systems creates systematic threats to international students' basic psychological needs. However, these challenges become even more difficult because of the nature of educational transition. For international students, this means both the move between academic levels and the cultural

relocation from one's home country to a foreign educational environment (Benner et al., 2017). These periods are especially sensitive, as changes in familiar routines and expectations can significantly affect students' well-being and are frequently accompanied by fluctuations in academic performance and increased psychological distress (Kiuru et al., 2020; Ye et al., 2021).

When students enter a completely new educational environment, they face the challenges of adapting to an unfamiliar school culture, classroom dynamics, teacher expectations, and peer relationships (Mulaudzi, 2023). This adaptation process strongly influences learning outcomes and academic performance (Bryk et al., 2010; Lee & Shute, 2010). From the perspective of self-determination theory, this period is especially risky because the loss of familiar relationships and cultural routines can threaten all three basic psychological needs. Schell (2023) reported that Chinese international students value emotional support and cultural sensitivity most, reflecting the centrality of relatedness during cultural transitions. Strong teacher–student relationships and a sense of belonging are particularly crucial (Eccles & Roeser, 2011; Wentzel, 2016), underscoring the centrality of need-supportive environments across teachers, peers, and institutions.

Self-determination Theory

Self-determination theory (SDT; Ryan & Deci, 2017) offers a theoretically coherent framework for integrating the fragmented literature on international student support. Self-determination theory posits that students' learning motivation lies on a continuum from amotivation to forms of extrinsic motivation and then to intrinsic motivation, a process explained by organismic integration theory—a subtheory within SDT (OIT; Deci & Ryan, 1985). OIT distinguishes forms of motivation by degree of internalization, ranging from amotivation and extrinsic regulation to intrinsic motivation (Ryan & Deci, 2000).

The extent to which individuals progress toward autonomous motivation depends on whether their basic psychological needs are met. Basic psychological needs theory (BPNT), a foundational component of SDT, identifies these needs as autonomy (the need for individuals to make choices according to their own will and values), competence (the psychological need for individuals to feel capable of mastery and coping with environmental challenges), and relatedness (the need for individuals to establish connections and a sense of belonging with others). When students' fundamental psychological needs are sufficiently met, they are more likely to experience intrinsic motivation, deeper engagement in learning, and ultimately to achieve better academic performance (Faye & Sharpe, 2008; Ryan & Deci, 2000). However, when these needs are thwarted, they are more likely to display disengagement, stress, or mental health concerns (Ryan & Deci, 2000; Reeve, 2013).

While these three needs appear universal, the specific practices through which they are satisfied may differ across cultural contexts (Bissessar et al., 2020; Chirkov et al., 2003; Iyengar & DeVoe, 2003; Nalipay et al., 2020; Ryan & Deci, 2017). For instance, competence support is more important in the West, whereas Eastern cultures may place greater importance on relationships and collective

belonging (Chao & Tseng, 2002; Schell, 2023). For international students, the shift represents not only a change in location but also a fundamental change in the social-contextual factors that either support or undermine need satisfaction. This self-determination theoretical framework offers an integrative lens for understanding how teacher, peer, family, and institutional support collectively shape need satisfaction in cross-cultural educational contexts.

METHOD

This systematic review followed the guidelines of the PRISMA 2020 statement (Page et al., 2021) in planning, conducting, and reporting all the procedures. There are four main stages in this review: 1) identifying; 2) screening; 3) inclusion; and 4) synthesizing. All the procedures were documented to ensure transparency and reproducibility. The review protocol was not prospectively registered, as this narrative synthesis focused on descriptive analysis rather than intervention effectiveness.

Identification

A comprehensive search was conducted across the following three electronic databases: EBSCOhost [Academic Search Premier, ERIC, & PsycINFO], ProQuest [ERIC & ProQuest Dissertations & Theses Global], and Scopus. This combination of databases was selected to ensure comprehensive coverage of the relevant literature at the intersection of educational psychology, cross-cultural psychology, and higher education research.

The initial search was conducted on May 30, 2025, in EBSCOhost, followed by parallel repeated in the other database in July 2025. The automated search applied the following three filters: (1) journal articles only, (2) peer-reviewed articles, and (3) publication years between 2015 and 2025. However, the number of articles related to this topic was initially small; thus, the publication window was expanded to 2010 and 2025. To identify additional relevant studies not captured in the database searches, we manually screened additional studies from the reference lists of the included articles from November 2025 to January 2026. No gray literature sources, such as dissertations, conference proceedings, or unpublished reports, were systematically searched.

The search strategy incorporated four conceptual domains that reflected the core theoretical and empirical focus of the review. In the first domain, self-determination theory is constructed, which includes autonomy support, competence support, relatedness support, and basic psychological needs. The second domain captured cultural frameworks and included terms related to collectivism, individualism, cross-cultural context, and cultural mismatch. The third domain targeted the population of interest through terms such as international students, foreign students, Asian students, and cross-cultural students. The fourth domain focuses on learning outcomes, including motivation, engagement, performance and achievement. The search strings for each database

combined these conceptual domains using Boolean operators (AND, OR) to ensure relevant combinations of concepts. The complete search strategies for all the databases, including the exact search strings as they were entered into each platform, are provided in Appendix A.

All the retrieved records were exported in RIS format and imported into Zotero (version 7.0.30) for reference management. Duplicate removal was performed using Zotero's automatic duplicate detection function, followed by manual verification (title, author, year, DOI). We identified 114 total articles, 28 of which were duplicates. The remaining 86 studies were moved to the screening phase.

Eligibility criteria

Studies were included if they met all of the following criteria. First, the population had to focus on international students or culturally diverse learners in higher education settings. Studies examining exclusively K-12 students, domestic (noninternational) students, or nonstudent participants such as faculty, administrators, or parents were excluded. Second, the phenomenon of interest had to examine the intersection of cultural background, particularly collectivist or individualist values, academic motivation, and support systems provided by teachers, peers, or institutions. Studies that did not address at least two of these three components (cultural background, motivation, and support) were excluded.

Third, the context had to involve higher education settings or educational transition periods, including first-year experiences and cross-cultural adaptation to new academic environments. Studies conducted entirely in K-12 education, workplace settings, or nonacademic contexts were excluded. Fourth, the theoretical framework had to include motivational constructs aligned with SDT or BPNT, including but not limited to autonomy, competence, and relatedness, interpreted broadly to capture studies using aligned terminology without explicit SDT attribution. Studies that examined student experiences without reference to motivational constructs were excluded. Fifth, the study design had to present original empirical data collected through quantitative, qualitative, or mixed methods approaches. Nonempirical publications such as theoretical papers, commentaries, editorials, systematic reviews, and meta-analyses were excluded.

The complete eligibility criteria framework, including the specific inclusion and exclusion parameters for each criterion, is presented in Table 1.

Table 1: Eligibility Criteria for Study Inclusion

Criteria	Include	Exclude
Population	International students or culturally diverse learners in higher education with collectivist culture backgrounds	K-12 students; Domestic students; noninternational students; nonstudent participants (faculty, administrators, parents, etc.)
Cultural context	Cultural adjustment, adaptation, acculturation, mismatch	Unrelated to included criterial keywords
Theory	Teacher/peer/family support OR social support + belonging OR SDT need-support	Unrelated to included criterial keywords
Context	Higher education settings; transitional academic setting; first-year experience	K-12 education; workplace settings; nonacademic contexts
Outcome	Motivation, engagement, performance, achievement, persistence	Unrelated to included criterial keywords
Timeframe	Published between 2010-2025	Published before 2010

Data collection process and screening

Data extraction was performed by the first author using a standardized two-worksheet form in Microsoft Excel. The first worksheet contained bibliographic information and screening decisions with included, excluded and uncertain choices and one excluded reason column for the first screening. The second worksheet was used for the synthesis process.

In the screening phase, the search identified 86 reports that were screened by the first author to judge whether the report would be retrieved for further examination to determine its potential relevance. The screening was conducted in two sequential stages. First, records were excluded at title or abstract screening only when they clearly failed to meet the eligibility criteria. When eligibility was unclear, for example, when abstracts provided insufficient detail about the population, theoretical framework, or study design, these records were excluded. Afterward, the full text—the second stage—was retrieved for assessment against all eligibility criteria. Reasons for exclusion at the full-text stage were documented. Forty-one studies were identified as irrelevant and removed after screening, and the remaining 45 studies were subjected to full-text review.

During full-text screening, the retrieved articles were assessed using all the eligibility criteria outlined in Table 1. Reasons for exclusion at the full-text stage were documented to provide transparency in the selection process. These reasons included an inappropriate population (e.g., K-12 students, domestic students only), the absence of cultural or motivational constructs aligned with the review scope, or the absence of evidence of self-determination theory (SDT) or need-support theory. After full-text screening, 23 articles were included in the synthesis. An additional 12 studies were identified through reference list screening of the included articles, yielding a final sample of 35 studies (see appendix B for the

characteristics of the 35 included studies). The number of records at each stage is reported in the PRISMA flow diagram (Figure 1).

To enhance reliability and minimize potential bias in study selection, a supervisor audit procedure was implemented, whereby a secondary senior researcher randomly spot-checked 20% of the excluded records, and all 35 included core studies to ensure consistency with the established eligibility criteria. Any discrepancies were resolved through reflexive dialog until 100% consensus was achieved.

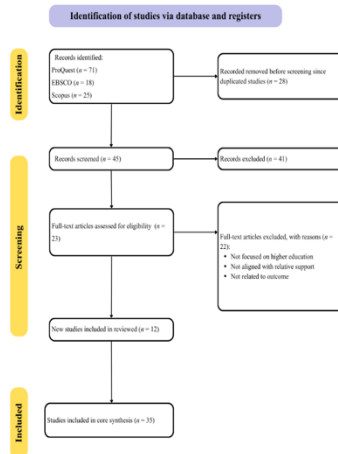


Figure 1: PRISMA flow diagram.

Note. Adapted from Page et al. (2021)

Synthesizing

During the full-text review, data extraction was performed by the first author using a standardized extraction form developed into the second worksheet to extract the detailed study contents. Finally, 35 empirical studies were identified as core and directly addressed the research questions and measured motivation through different theoretical lenses and assessment tools. To obtain an overall synthesizing picture, we organized the included studies into three themes on the basis of their primary focus and contributions to the review question. These themes are not mutually exclusive; rather, they reflect the interconnected nature of belonging, well-being, and academic experiences, as documented in the literature on international students in higher education. Thematic synthesis was employed as the analytical approach (Thomas & Harden, 2008), with themes derived through a primarily deductive process guided by self-determination theory's three basic psychological needs as organizing constructs. The themes are summarized in Table 2.

Table 2: Overview of Synthesized Themes

Theme	Theme Label	Key Outcomes	Key studies
1	Need-supportive teaching and autonomy in the classroom	Motivation, engagement, autonomy, academic	Cho et al. (2023); Cho et al. (2021); Curtin et al. (2013); Smith & Watson (2022)
2	Institutional support, belonging, and student satisfaction	Belong, satisfaction, wellbeing, identity, academic	Law & Liu (2023); Matheson & Sutcliffe (2018); Moores & Popadiuk (2011); Schell (2023)
3	Peer relationships, Conational networks, and social belonging	Belong, wellbeing, identity, adjustment	Antonio & Back (2022); Kim et al. (2022); Rivas et al. (2019); Mullen & Li (2025)

Self-determination Theory as a Theoretical Interpretive Framework

A central methodological decision in this review concerns how self-determination theory (SDT) is used. Rather than restricting inclusion to studies that explicitly cite SDT, which would yield an unacceptably narrow evidence base, this review employed SDT as a theoretical interpretive framework used to organize, interpret, and integrate findings from a body of literature, which is consistent with qualitative evidence synthesis methodology that does not share a common conceptual vocabulary (Flemming & Noyes, 2021). SDT’s core constructs (autonomy support, competence, relatedness, and need satisfaction) are widely studied in the international student literature under varied terminologies, such as teacher support, sense of belonging, self-efficacy, and academic adjustment, without always being attributed to SDT. Therefore, in this process, we categorized these 35 articles into three levels: one group of articles contained clear and focused empirical reports of SDT, and the other group contained articles that were related to but did not specifically mention SDT.

RESULTS

Study Characteristics

The 35 included studies were conducted across more than 10 countries. Most research was situated in North America ($n = 17$) or Europe ($n = 9$), with additional studies focusing on Australia or New Zealand ($n = 7$) and East Asia ($n = 3$). Sample sizes varied substantially, ranging from small qualitative samples of four participants to large survey datasets with more than 659 respondents. The participants were primarily undergraduate and graduate international students, while a minority of the studies ($n = 3$) focused on doctoral international students.

Qualitative methods were most common ($n = 17$, 48.6%), followed by quantitative ($n = 11$, 31.4%) and mixed-methodological ($n = 6$, 17.6%) approaches, reflecting that international students' subjective needs support is particularly well suited to qualitative inquiry while also benefitting from complementary quantitative evidence (Flemming & Noyes, 2021).

SDT across Included Studies

In line with the previous analytical approach section, this review employs SDT as a theoretical interpretive framework rather than a strict inclusion criterion, and these included studies were classified into three levels of SDT. Eight studies (22.9%) were classified as "explicit", which were named SDT or BPNT as their primary theoretical frameworks (e.g., Cho et al., 2021; Law & Liu, 2023; Li & Wang, 2024). Nine studies (25.7%) were grouped as "implicit", as they measured or discussed constructs that directly correspond to the three basic needs identified by self-determination theory, such as autonomous motivation, need satisfaction, and competence (e.g., Antonio & Baek, 2022; Curtin et al., 2013; Xing & Bolden, 2019). The remaining 18 studies (51.4%) were classified as "aligned", as their constructs and findings aligned closely with an SDT framework, encompassing a sense of belonging, academic adjustment, self-efficacy, and well-being, despite the absence of explicit theoretical reference to SDT (e.g., Matheson & Sutcliffe, 2018; Rivas et al., 2019; Yuan et al., 2024).

Results of Syntheses

Cultural mismatch theory (Stephens et al., 2012) helps explain what students may experience as they transition from collectivist to individualist cultural environments. Family support was underrepresented (one study, 2.9%) and is discussed separately in the Discussion section. The three themes below address RQ1 and RQ2 through the lens of SDT's basic needs.

Need support of the teacher in the classroom

In response to RQ1, we included studies in which teacher behavior played a decisive role in students' psychological needs being satisfied. On the basis of 23 studies focused on teachers' supportive strategies with international students, three primary higher education settings were identified: autonomy-supportive atmosphere, culturally responsive pedagogy, and structured academic scaffolding. These forms of teacher support were associated with positive outcomes for RQ2, such as academic engagement, intrinsic motivation, belonging, and psychological adjustment.

Cultural mismatch intensified these challenges such that students from collectivist cultures frequently felt confused when they navigated autonomy-heavy or open-ended tasks. This not only undermined students' sense of relatedness and safety (Schell, 2023) but also limited their opportunities for input and output learning within group collaborations, leading to the phenomenon

known as “cultural hysteresis” (Matsunaga et al., 2021). Teachers who develop awareness of these cultural dynamics, such as heightened sensitivity to “losing face” and respect for authoritative figures, are better positioned to interpret student silence as a form of cultural caution rather than disengagement or low ability (Bai & Wang, 2022; Hu et al., 2020). Such cultural sensitivity is a crucial prerequisite for the development of more inclusive and equitable classrooms.

Building on this foundation, teachers are encouraged to adopt proactive and responsible instructional practices, integrating a commitment to student engagement into daily teaching activities. When teachers design classroom activities that respond to and affirm students’ cultural identities, international students’ intrinsic motivation to learn is stimulated (Li & Wang, 2024). When autonomy-supportive and growth-oriented environments are provided, students’ willingness to participate in class increases (Tan et al., 2023). Structured scaffolding also supports student engagement and actively guides learners toward independent learning (Cho et al., 2023). Notably, “excessive support” that extends beyond surface-level needs has been shown to enhance students’ classroom engagement, academic performance, and overall well-being (Li, 2016; Schell, 2023). In contrast, teachers’ indifference or reluctance to assist when students seek help often leads to increased pressure and reduced self-efficacy among international students from China (Cheng & Adekola, 2022). This need-supportive approach should extend beyond the first year, as graduate and doctoral students similarly benefit from strong teacher–advisor relationships (Antonio et al., 2022; Hu et al., 2020; Latif et al., 2025; Li, 2016).

Peer Support and Belonging

Thirteen studies indicated that peer support played a crucial role in international students’ cultural adaptation and academic development. Shared experiences of cultural transition provide a natural foundation for relationship-building among international students, facilitating adjustment and accelerating acculturation through informal learning about host country norms (Kim et al., 2022; Moores & Popadiuk, 2011). Furthermore, Kim and Lee (2025) reported that social support significantly reduced acculturative stress among Korean international students, which in turn positively predicted self-esteem. Peer relationships also support academic outcomes through an indirect pathway, as peer interactions build reciprocal relationships that enhance academic confidence and self-efficacy, which in turn support academic performance (Curtin et al., 2013; Wang, 2018; Yu, 2013).

However, research has also revealed significant differences in peer support among various student subgroups. Compared with international or other international peer relationships, international students reported relatively low levels of satisfaction with friendships formed with host-country peers. Cultural differences consistently emerged as the primary barrier to broader social integration, alongside language challenges, differing social customs, and academic time pressures (Cheng & Adekola, 2022; Christidis, 2021). Notably, Rivas et al. (2019) reported that Chinese students generally did not encounter

significant difficulties in forming friends with peers from other international backgrounds. This suggests that the challenges faced by Chinese students are more specifically related to cross-cultural integration with host country peers than peer interaction itself.

Institutional Support, Belonging, and Academic Adjustment

Among the studies related to institutional support, 60% ($n = 21$) provided empirical evidence for this support type in shaping international students' outcomes, including sense of belonging, academic adjustment, well-being, and engagement. Institutions' efforts to support students prior to and immediately following arrival emerged as a meaningful factor in early adjustment, which provided a sense of confidence for international students that the institution cared about their well-being. The program was associated with both academic performance and positive psychological adjustment (Singh, 2023). In contrast, when institutional support systems were frequently experienced as fragmented, confusing, and difficult to navigate, students experienced fragmentation and relied instead on informal peer networks to fill support gaps (Mai et al., 2025).

Institution-led cultural programs and designated intercultural spaces represented a second mechanism for fostering belonging and cultural integration. Creating designated spaces for cultural expression provided international students with meaningful pathways for contributing to academic discussions and cultivated a sense of belonging (Latif et al., 2025). Furthermore, campus cultural activities encourage students to engage in intercultural communication and learning motivation (Li & Wang, 2024). For example, a language-exchange table initiative allowed students to practice new language skills in a psychologically safe environment while fostering meaningful intercultural connections, particularly on campuses with low international student density (Eckerson et al., 2022).

In addition, institutional advisor support has been shown to play an important role in international students' sense of belonging and academic success. When advisors did not recognize students' cultural expectations for guidance, students, especially Chinese international students, felt less connected and less psychologically safe (Schell, 2023). Conversely, advisors' cross-cultural empathy significantly predicted students' sense of belonging, which accounted for 41.3% of the advising–belonging relationship in one study (Yuan et al., 2024). Similarly, Curtin et al. (2013) reported that students' sense of producing good-quality work was closely tied to advisor support in a study that included 55.5% Chinese international students. In a large-scale study of 998 STEM international graduate students, Myers et al. (2023) reported that support from institutional agents was positively associated with students' perceptions of both cultural and institutional fit, which suggested that the quality of institutional relationships shapes both students' belonging and academic capability.

DISCUSSION

This systematic review synthesized 35 empirical studies to examine the effects of need support on the academic engagement, motivation, and sense of belonging of international students during culturally mismatched educational transitions. By integrating self-determination theory (SDT) with cultural mismatch theory, studies have directly or indirectly revealed that the systematic thwarting of basic psychological needs is the primary mechanism underlying international students' adjustment challenges rather than individual deficits.

Across all supports, a common pattern emerged in which need satisfaction is not simply a function of support availability but also a function of cultural responsiveness. Teachers have a decisive effect on the satisfaction of international students' basic psychological needs, especially in terms of their competence and relatedness pathways—acknowledging students' face sensitivity, affirming their cultural identities, and offering constructive rather than critical feedback. As students' motivation and self-efficacy increase, their sense of belonging increases (Li & Wang, 2024; Stein et al., 1998; Xing & Bolden, 2019). However, when cultural attunement is absent, students tend to experience anxiety, withdrawal, or avoidance of classroom participation (Bai & Wang, 2022; Cheng & Adekola, 2022; Olivier et al., 2025; Pylväs & Nokelainen, 2025; Subasi et al., 2023). These results underscore that SDT's need-support constructs require teachers' cultural sensitivity when applied to cross-cultural educational settings, an extension of the theory that the present review is positioned to contribute.

Second, peer support similarly reveals the limits of generic social contact as a pathway to relatedness need satisfaction. While conational support from the same international student population buffers acculturative stress (Moore & Popadiuk, 2011; Kim et al., 2022), it does not fully substitute for meaningful host-country peer integration (Christidis, 2021; Rivas et al., 2019). The challenge is not peer interaction per se but rather the structural and cultural conditions that institutional levels should provide, such as the cross-cultural contact design for international students; otherwise, international students remain relationally peripheral even when they are physically present on campus.

Although family support was underrepresented in the included studies, it warrants attention as a distinct channel of relatedness need satisfaction. The literature showing that social support from family and friends outside of the host country could still be quite strong is mixed (Mak et al., 2015), as others have reported that home-based relationships often struggle to provide the understanding and emotional empathy that international students truly need (Xing & Bolden, 2019), suggesting that family support functions depend heavily on relationship quality and cultural context.

These findings provide practical implications for higher educational institutions, suggesting that faculty should incorporate cross-cultural pedagogy training to help instructors recognize cultural communication patterns. Additionally, institutions should prioritize proactive and nonreactive support models, such as embedding peer-connection programs before student arrival and treating cross-cultural empathy as a core measurable competency in advisor training (Yuan et al., 2024; Myers et al., 2023).

Limitations

Most of the studies retained for full-text analysis have focused on Chinese international students, yet the current international student population also includes students from India, South Korea, Vietnam, Nigeria, and numerous other countries (Buchholz, 2025). Future research should therefore include studies using more culturally diverse groups in an effort to assess whether different backgrounds require different forms of psychological support. Second, similar to the trends reported in previous research, most studies relied excessively on self-reported data, thus raising concerns about the social desirability effect. Future research should increase the proportion of qualitative or mixed methodological approaches to capture both clear and subtle differences between international student groups using more situated approaches.

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In the preparation of this manuscript, we utilized artificial intelligence (AI) tools for content creation with the following capacity:

- ☐ None
- ☒ Some sections, with minimal or no editing
- ☐ Some sections, with extensive editing
- ☐ Entire work, with minimal or no editing
- ☐ Entire work, with extensive editing

This article used AI-based grammar tools (e.g., Grammarly) to check the grammar and formatting during the manuscript process. No AI tools were used to generate original content or to conduct the study.

Appendix

Appendix A (search strategy and syntax) and Appendix B (characteristics of the 35 included studies) are available online as supplemental materials.

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