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Temporal Dynamics of International Student Well-being: Extending Self-Determination Theory in Higher Education

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ABSTRACT: *International student well-being is often examined as a stable outcome, obscuring how experiences fluctuate over time. However, higher education is organized through recurring institutional cycles, including arrival, teaching periods, assessment clusters, and progression points, that shape when demands and support arise. This qualitative study examines how these institutional rhythms influence students' psychological experiences. Drawing on self-determination theory (SDT), it explores how autonomy, competence, and relatedness are satisfied and frustrated across the academic cycle. Semistructured interviews were conducted with twelve international students studying in the United Kingdom, the United States, and Australia, and the results were analyzed using thematic analysis. The findings identify recurring temporal patterns in well-being and explain them through three mechanisms: phase alignment, accumulation and release, and institutional familiarization. The study shows that institutional calendars shape psychological need satisfaction and frustration, extending SDT by illustrating that psychological needs are organized not only by context but also by institutional time.*

Keywords: higher education, international students, psychological distress, self-determination theory, temporal dynamics, well-being

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INTRODUCTION

International students play a vital role in higher education, contributing to the academic, cultural, and economic life of host institutions while they gain educational capital and professional mobility, which may benefit their countries of origin (OECD, 2022). Although their presence has enriched universities, research consistently documents a range of challenges, including language barriers, unfamiliar academic practices, cultural adaptation, and separation from established support networks (Alharbi & Smith, 2019; Maharaj et al., 2025). These challenges have been linked to variations in well-being and psychological distress. However, most studies conceptualize these outcomes as relatively static and rely primarily on cross-sectional designs that capture psychological functioning at a single point in time (Lahme et al., 2024; Smith & Khawaja, 2011).

This static framing overlooks a central feature of higher education: the patterned timing of academic life. Universities operate through recurring institutional rhythms, including arrival and orientation, early teaching periods, assessment clusters,

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and progression points, each of which is associated with shifting demands, expectations, and outcomes. While research suggests that such transitions influence emotional functioning (Lahme et al., 2024), limited attention has been given to how well-being and psychological distress fluctuate systematically in relation to these rhythms. As a result, well-being is often treated as an endpoint rather than as a process embedded within evolving academic and structural conditions, despite evidence that student well-being shifts over time (Salmela-Aro & Read, 2017).

Understanding international student well-being therefore requires attention to *when* students encounter particular demands and support, not only to *what* those demands are. The same policy, teaching practice, or support provision may have markedly different consequences depending on its timing within the academic cycle and the constellation of pressures students are navigating. In this sense, institutional scheduling and design shape the conditions under which students experience autonomy, competence, and relatedness rather than functioning as neutral backdrops to student experience.

To address this gap, the present study adopts a temporal, process-oriented perspective on international student well-being. It examines how well-being and psychological distress fluctuate across degree pathways and how these changes are related to shifting configurations of contextual resources and challenges. International students may be particularly sensitive to these dynamics because structural constraints such as visa restrictions, financial pressure, and geographic separation from family can reduce flexibility in response to academic demands (Alharbi & Smith, 2019; Maharaj et al., 2025). This positions international students as particularly exposed to the temporal organization of institutional life and reinforces the importance of examining how the timing and concentration of demands shape psychological experience.

DEFINING INTERNATIONAL STUDENTS

This study adopts the definition used by the UNESCO Institute for Statistics (2023), which conceptualizes *international students* as individuals who cross national borders specifically to pursue tertiary education, typically enrolling full-time for six months or longer. This definition excludes short-term visitors, language-programme attendees, and school-aged children. The focus is on adult international students whose academic, cultural, and social lives become embedded within host institutions.

Although international students form the empirical focus, the temporal mechanisms identified speak more broadly to how institutional rhythms structure student well-being across higher education. By highlighting time as a structuring feature of academic life, this study positions well-being not only as an individual outcome but also as a process shaped by institutional structures.

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORKS

Research on international student experience has drawn on multiple theoretical frameworks to explain adjustment, stress, and well-being in higher education (Maharaj et al., 2025; Smith & Khawaja, 2011; Ward et al., 2001). However, they often conceptualize adjustment as a relatively linear process that progresses through stages of adaptation. Acculturation frameworks emphasize gradual cultural adaptation over time (Berry, 2005), stress-coping models conceptualize stressors primarily as discrete events (Lazarus & Folkman, 1984), and institutional habitus highlights enduring structural conditions (Bourdieu, 1984), often without considering how these experiences unfold across time.

This omission matters. Higher education is organized through recurring institutional cycles that shape contextual resources and challenges, which fluctuate across the academic year. When time is treated as incidental rather than constitutive, these patterned shifts in well-being and psychological distress remain theoretically underexplained (Marangell & Baik, 2022; Shahjahan et al., 2025).

SDT (Ryan & Deci, 2017) provides a useful foundation for addressing this gap. It conceptualizes autonomy, competence, and relatedness as basic psychological needs essential for optimal functioning and mental health. Because these needs are sensitive to contextual conditions, SDT has been widely used to examine how educational environments support or frustrate student well-being. Supportive and strength-based environments have also been shown to enhance international students' mental health and resilience (Hung et al., 2024). However, empirical applications often assess basic needs at single points in time, treating them as situational states rather than as a process unfolding across institutional rhythms (Vansteenkiste et al., 2020).

The present study extends this framework by conceptualizing need satisfaction and frustration as temporally dynamic processes that fluctuate in response to shifting configurations of contextual resources and challenges. A growing body of research has examined temporal variation in student well-being, particularly through longitudinal and within-year designs that track changes in stress, engagement, and adjustment (Lahme et al., 2024; Salmela-Aro & Read, 2017). These studies provide important evidence that well-being fluctuates across the academic year and often intensifies during periods of heightened academic demand. However, this work has largely focused on documenting patterns of change rather than explaining how such patterns are produced. Temporal variation is attributed to stages of adjustment or increases in workload rather than to how institutional systems organize and concentrate these demands (Salmela-Aro & Read, 2017). As a result, time is treated primarily as a descriptive dimension rather than an organizing feature of institutional life. This leaves an underdeveloped account of why similar demands exert different psychological effects depending on their timing and concentration. Building on this literature, the present study shifts attention from variation over time to the institutional organization of time itself. It advances existing

research by moving from documenting change to explaining its underlying mechanisms, showing how recurring academic rhythms generate patterned fluctuations in autonomy, competence, and relatedness (Kahu et al., 2020; Tinto, 2017).

Figure 1 illustrates how institutional time shapes psychological functioning through fluctuations in autonomy, competence, and relatedness.

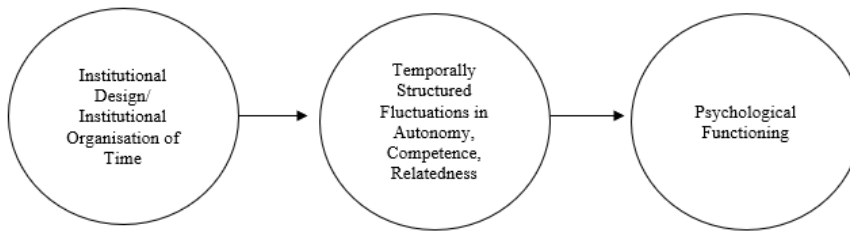


Figure 1: Conceptual Framework of Institutional Time and Psychological Need Dynamics in International Student Well-being

Within this framing of institutional rhythms, well-being is understood not only as the absence of distress but also as optimal psychological functioning. Drawing on positive psychological approaches aligned with SDT (Ryan & Deci, 2017; Seligman, 2011), well-being and psychological distress are treated as interconnected dimensions that may cooccur and fluctuate over time (Keyes, 2002; Lovibond & Lovibond, 1995). This perspective enables examination of how positive functioning and strain emerge simultaneously under different configurations of institutional support and constraint.

RESEARCH QUESTIONS

Grounded in this perspective, the present study addresses the following questions:

- (1) How do international students describe their well-being and psychological distress across the academic cycle?
- (2) Which contextual resources and challenges become salient at different phases, and how do they interact with institutional rhythms?
- (3) How are these experiences reflected in fluctuations in autonomy, competence, and relatedness?

METHOD

Data Collection

Semistructured interviews were conducted between February and March 2025. The interviews lasted between 45 and 75 minutes, were audio-recorded, and were transcribed verbatim. Where participants preferred to speak in a language other than English ($n = 4$), interviews were conducted in their preferred language where feasible and subsequently translated into English by bilingual researchers. Translations were reviewed collaboratively among the researchers to ensure accuracy and preserve participants' intended meanings. This process aimed to maintain conceptual and contextual equivalence across languages.

Ethical approval was obtained from the host university's Human Research Ethics Committee, and informed consent was obtained from all participants. The data were stored securely in accordance with institutional protocols.

Sampling and Participants

Participants were recruited using a purposive, criteria-based sampling strategy aligned with the study focus (Creswell & Poth, 2018). Recruitment occurred through professional networks, direct contact with students, and snowball sampling.

The eligibility criteria included (1) international student status at a university in the United Kingdom, United States, or Australia; (2) age 18 years or older; (3) ability to provide informed consent; and (4) at least six months of study experience in the host country. These criteria ensured that participants had sufficient exposure to their academic and social environments to reflect meaningfully on adjustment, well-being, and psychological distress.

Sample size was guided by the principles of information power, prioritizing depth and relevance of data rather than numerical representation (Malterud et al., 2016). Data collection continued until thematic saturation, indicated by the repetition of codes and the absence of substantively new meanings in later interviews, particularly regarding temporal fluctuations in well-being and psychological distress and associated changes in autonomy, competence, and relatedness.

The final sample comprised twelve international students (eight females and four males) aged between 21 and 49 years, with residence in host countries ranging from six months to five years. The participants represented diverse disciplines, including architecture and design, business management, engineering, languages, languages, medicine, music, nursing, and psychology, and were enrolled across undergraduate, master's, and doctoral programs. This diversity enabled the exploration of both shared and divergent experiences across academic levels and backgrounds.

Participants are identified using numerical labels (Student 1–Student 12) to preserve anonymity while maintaining clarity in presenting individual accounts (Braun & Clarke, 2021).

The sample included a greater proportion of doctoral students, which may reflect the longer duration and greater accessibility of doctoral study pathways in participant recruitment.

Table 1 summarizes the participants in the semistructured interviews.

Table 1: Participants in the Semi-Structured Interviews

Participant	Age	Gender	Degree Level	Discipline	Region of Origin	Host Country	Length of Stay
Student 1	21	Male	BA	Languages	Southeast Asia	UK	3 Years
Student 2	35	Female	PhD	Psychology	Southeast Asia	UK	3 Years
Student 3	24	Male	BA & MSc	Psychology	Europe	UK	5 Years
Student 4	40	Female	PhD	Nursing	Southeast Asia	Australia	4 Years
Student 5	42	Female	PhD	Nursing	Southeast Asia	Australia/UK	3 Years
Student 6	36	Female	MSc & PhD	Medicine	Southeast Asia	USA	4 Years
Student 7	49	Female	PhD	Architecture and Design	Southeast Asia	UK	4 Years
Student 8	30	Male	PhD	Engineering	Southeast Asia	UK	6 Months
Student 9	24	Female	BA, MSc & PhD	Business Management	East Asia	UK	5 Years
Student 10	40	Male	PhD	Architecture and Design	Southeast Asia	USA	3 Years
Student 11	23	Female	BA & MSc	Music	Southeast Asia	Australia/UK	3 Years
Student 12	36	Female	PhD	Business Management	Middle East	UK	3 Years

Note. Two students (Students 5 and 11) completed part of their studies in Australia before transferring to universities in the UK. Four students (Students 3, 6, 9 and 11) studied in different programs over time

Interview Schedule

The interview schedule was designed to capture students' experiences of well-being and psychological distress. Semistructured interviews balanced consistency across participants with the ability to pursue issues of personal relevance (Kvale & Brinkmann, 2015). Questions invited participants to reflect on their motivations for studying abroad; their experiences with adjustment and well-being; their academic practices and workload; their social relationships; their language use; and their engagement with institutional support structures.

During early interviews, the temporal dimensions of students' experiences emerged as important themes. Subsequent participants were therefore encouraged to reflect on how their well-being and psychological distress fluctuated across different stages of study, including arrival, early semesters, assessment periods, and later phases of their degree, as well as any relevant institutional changes. This approach aligns with qualitative research that emphasizes change and process rather than static outcomes (Neale, 2020).

The interviews concluded with future-oriented reflections on the types of environments or support participants believed would best promote international student well-being, providing insight into perceived contextual resources and challenges and their implications for autonomy, competence, and relatedness.

Data Analysis

Data were analyzed using thematic analysis, following established approaches for identifying patterned meanings across qualitative datasets (Braun & Clarke, 2021; Nowell et al., 2017). The analysis involved familiarization with the transcripts, inductive coding across the dataset, and iterative development and refinement of the themes. Coding was conducted across multiple iterative rounds, with the themes refined through ongoing team discussion. Coding focused on participants' descriptions of contextual resources and challenges, emotional responses, and changes across different stages of the academic journey. Attention was also given to identifying deviant or contrasting cases to ensure that the themes captured both common patterns and meaningful variation within the dataset.

Themes were developed inductively through initial open coding, followed by pattern identification and iterative refinement across the dataset. SDT informed interpretation at a later analytic stage, providing a conceptual lens for examining how

institutional conditions were experienced as supporting or frustrating autonomy, competence, and relatedness. Illustrative extracts were selected to represent central patterns while retaining participants' voices.

A reflexive approach was adopted throughout the research process (Braun & Clarke, 2021). Credibility was enhanced through collaborative review of coding decisions and ongoing engagement with the data, with interpretations grounded in participants' accounts and supported by direct evidence from the dataset.

Cultural and Institutional Contexts

The study involved interviews with international students from Southeast and East Asia, Europe, and the Middle East who were studying in the United Kingdom, the United States, and Australia. This diversity enabled examination of shared experiences across differing academic calendars, focusing on relative institutional rhythms rather than identical structures (Creswell & Poth, 2018; Malterud et al., 2016).

Rather than adopting a comparative cultural focus, the analysis focused on how students described navigating academic demands, social relationships, and institutional structures across their academic journeys. This approach enabled the identification of common temporal processes shaping well-being and psychological distress while remaining attentive to the contextual conditions within which these experiences were situated (Braun & Clarke, 2021; Neale, 2020).

RESULTS

Summary

Analysis revealed that students' well-being and psychological distress followed recurrent temporal patterns shaped by institutional timing rather than stable individual characteristics. Four institutional phases were identified, each reflecting distinct configurations of autonomy, competence, and relatedness. Three temporal mechanisms explain how institutional rhythms generate these patterns. Phases describe observable patterns, whereas temporal mechanisms capture the underlying processes that produce them.

Phase 1: Early Transition

The early transition phase was characterized by strong aspirations and intrinsic goals that initially supported motivation and a sense of autonomy. Students described studying abroad as deeply meaningful and closely aligned with long-standing personal ambitions, which generated optimism and a sense of purpose upon arrival. These aspirations functioned as important motivational resources, helping students tolerate uncertainty and navigating cultural unfamiliarity.

"Since I was a child, I hoped that one day I could study in the UK. It was like a dream come true. If I go back to Jordan, I will have my position as a university lecturer." (Student 12)

Aspirations were closely tied to academic excellence and access to opportunities perceived as unavailable in students' home countries. For many, studying abroad represented a strategic investment in future career mobility and international prospects.

"A degree from an internationally recognized university means I can work not just in my home country but anywhere in the world" (Student 6)

Similarly, the appeal of global academic prestige and advanced research environments was described as a central motivation for relocation.

"The research facilities and professors here are among the best in the world. If I wanted to be at the top of my field, I had to come here." (Student 5)

However, these motivational resources operated within constrained structural conditions. Financial strain and scholarship limitations narrowed students' perceived choice and introduced persistent pressure, even as they sought independence and pursued longer-term aspirations. Financial concerns were described as a constant backdrop to everyday decision-making, with one student noting the following:

"Rent, food, and transport take up most of my budget, and I constantly worry about running out of money." (Student 3)

Limited working hours and limited employment opportunities further reduced students' sense of control. Several students described making significant lifestyle sacrifices to manage costs.

"I had to cut back on everything, food, transport, even heating because I couldn't afford the bills. It was tough trying to study and survive at the same time." (Student 7)

Competence was typically low during this phase because unfamiliar academic systems and language barriers generated anxiety about participation and academic performance.

“Some professors spoke too fast, and I couldn’t always follow. Sometimes I had to record lectures and listen to them multiple times just to understand. Sometimes I just pretended to understand because I didn’t want to ask them to repeat anymore.” (Student 5)

Relatedness was also fragile, as cultural distance and limited social networks restricted opportunities for belonging.

“I thought I could just blend in, but I quickly realized how difficult it was. I often felt like an outsider.” (Student 10)

This phase was therefore characterized by motivational asymmetry, in which strong aspirations coexisted with constrained autonomy and unstable relatedness. Well-being reflected the tension between intrinsic motivation and structural vulnerability rather than a uniformly positive transition.

Phase 2: Mid-Year Adjustment

The mid-year adjustment phase marked a period of increasing familiarity with academic systems and consolidation of peer networks, which supported the development of competence and stabilized relatedness. Students described increasing confidence in navigating coursework, assessment expectations, and institutional processes, with repeated exposure and practice contributing to these gains. As one student reflected,

“Over time, I adapted, and now I feel more confident in myself and my abilities.” (Student 3)

In addition to this growing academic confidence, relationships with other international students provided emotional support and shared understanding, reinforcing feelings of belonging and adjustment. Being surrounded by peers who shared similar challenges helped reduce feelings of isolation and normalized academic and cultural struggles. One participant described how this shared experience fostered a sense of settlement:

“Being around people who understood what I was going through made me feel less alone and more settled. Now I feel I am in a much better place.” (Student 2)

Peer networks developed through both conational and international friendships, each serving different but complementary functions. Conational friendships offered familiarity, cultural comfort, and emotional reassurance, whereas broader international friendships provided shared perspectives on academic pressure and cross-cultural adjustment. Informal social spaces, including shared accommodations, study groups, and student societies, created opportunities for interaction and connection. For some students, the formation of conational friendships was particularly significant.

“When I finally made Thai friends around my second year, I started going out and meeting people, and my mental health got better.” (Student 4)

However, these gains in competence and relatedness remained fragile. Rising academic demands increase workload intensity and reduce opportunities for social interaction, placing sustained pressure on relational connections. Periods of intensive coursework disrupted social routines and limited time for peer engagement, resulting in some students feeling overwhelmed, as one student noted:

“When all the deadlines came together, I felt overwhelmed, like I was back at the beginning. Everyone seemed stressed and busy.” (Student 1)

These patterns indicate that peer relationships functioned as important contextual resources that temporarily stabilized relatedness during the middle of the academic cycle but remained vulnerable to disruption under peak academic pressure. As expectations intensified, some students experienced renewed isolation despite increased familiarity with academic systems. One student captured this tension clearly:

“In the second year, the homesickness hit again... now I have to actually live life here for real, right? The coursework, the competition, and no friends and family around... it feels a bit too much sometimes.” (Student 11)

These experiences often coincided with periods of intensified assessment pressure, as discussed in the next section. During this phase, although academic competence increased, relational stability did not improve in parallel. Instead, relatedness remained fragile and contingent, and rising workloads and compressed deadlines easily disrupted it. Mid-year adjustment therefore reflected increasing competence alongside fragile relatedness, with both remaining vulnerable to disruption under rising academic demands.

Phase 3: Assessment Cluster Period

The assessment cluster phase marked the most intense period of strain. Students described acute pressure as multiple assessments converging within compressed timeframes, often coinciding with seasonal challenges such as winter darkness. This accumulation of demands disrupted earlier gains in confidence and perceived effectiveness, producing a renewed sense of overload and loss of control. As peer engagement declined under time pressure, social withdrawal intensified, with one student noting the following:

“During exams, everyone disappeared into their own work, and that’s when I felt the most stressed and alone.” (Student 1)

Similar experiences were reported by other participants, who described difficulty sustaining coping strategies under sustained time pressure. One student captured this sense of overwhelm succinctly:

“There was so much to do and so little time. Sometimes I didn’t know how I was going to cope.” (Student 12)

Seasonal conditions compounded these academic pressures, heightening fatigue and emotional exhaustion. Students described how winter darkness worsened feelings of strain, making everyday tasks more difficult to manage.

“The cold and dark winter was really tough for me. It was not just the cold; it got dark early and even small tasks felt overwhelming.” (Student 2)

Persistent academic pressure during the winter and examination periods contributed to increasing emotional exhaustion and motivational depletion, with one student reflecting the following:

“I felt mentally drained. I couldn’t sleep properly, and my motivation dropped. There were days when I didn’t want to leave my room. The pressure from everything was too much.” (Student 10)

Students experiencing academic stress, institutional complexity and unfamiliarity with the host-country healthcare system further compounded distress. In some cases, unclear pathways to support and long waiting times discouraged help-seeking or delayed access to services, leading students to manage difficulties independently.

“I was stressed and wanted to see a counsellor, but the waiting list was so long that by the time I got an appointment, I felt like I had already dealt with the issue on my own.” (Student 8)

During this phase, inflexible schedules constrained autonomy, compressed workloads and challenged competence, and opportunities for social connection declined. These pressures frustrated all three psychological needs and contributed to cumulative mental and physical exhaustion. Strain was driven not only by heavier academic demands but also by the overlap of academic, seasonal, and institutional pressures that intensified students’ emotional and psychological strain.

Phase 4: End-of-Year Uncertainty

Following the completion of major assessments, the students described a period of relief and partial recovery. Reduced academic pressure, more predictable routines, seasonal improvements, and informal peer guidance contributed to renewed energy and greater stability in terms of competence and relatedness.

“When the sun came out more, I felt more energized. Winter brought me down, but spring made things feel more manageable.” (Student 7)

Others similarly described how the easing of academic requirements supported emotional recovery and re-engagement with daily life, with one reflecting the following:

“Once the big deadlines were over, I finally felt like I could breathe again and enjoy being here.” (Student 9)

Many students reported distinct periods during which their well-being improved, particularly during spring and early summer. These moments often coincided with warmer weather, lower academic workloads, and breaks between teaching blocks. Students described noticeable improvements in mood and motivation during this time.

“In June, everything looked prettier, and my mood definitely got better. The parks were full of flowers like back home.” (Student 2)

However, recovery remained incomplete for some students, particularly those near program completion. As academic pressure receded, uncertainty about employment prospects and visa status became more salient. Structural concerns about poststudy transitions therefore shaped emotional experiences during this phase.

“By the end, I felt stronger and more confident but also worried about what comes next.” (Student 4)

These tensions widened the gap between students' aspirations and the conditions that shaped their poststudy prospects. For some, the prospect of returning home to limited opportunities generated a renewed sense of restricted choice.

"I'm worried I'll go back and end up in the same place I started. That would make everything I've done here feel pointless." (Student 2)

Well-being at the end of the academic year was therefore characterized by regained confidence alongside renewed anticipatory worry, reflecting the continued influence of constraints beyond immediate academic demands.

Cross-Phase Analysis

These patterns indicate that fluctuations in well-being are structured not only by the presence of demands but also by their temporal concentration and sequencing. Well-being followed recurring patterns of strain and partial recovery shaped by the timing and concentration of institutional expectations. These patterns reveal cycles of strain and recovery, with similar pressures re-emerging during peak periods despite growing familiarity with academic systems.

The early phases offered motivational resources, yet these did not reliably buffer students against rising workloads and constraints. During assessment periods, compressed deadlines and reduced social interaction converge to produce simultaneous strain across autonomy, competence, and relatedness. Gains in confidence and connection were quickly destabilized, showing that adaptation did not provide reliable protection against temporally concentrated demands.

Following major assessments, students reported partial restoration of energy, efficacy, and social connection, but recovery was uneven and short-lived. As academic pressure eased, uncertainty about employment and poststudy transitions became more prominent, reintroducing constraints on autonomy. Relief therefore shifted rather than resolved the focus of strain.

Across phases, fluctuations in autonomy, competence, and relatedness followed predictable cycles of accumulation and release. Students' experiences were shaped less by cumulative adaptation than by how institutional expectations were sequenced and concentrated. Strain intensified when demands clustered without adequate spacing, explaining why earlier gains in competence and familiarity did not shield students from later pressure.

Although these patterns were widely shared, there was variation in how students experienced each phase, with some reporting more stable trajectories or different responses to concentrated demands.

Table 2 summarizes the temporal phases, contextual factors, and need dynamics.

Table 2: Temporal Phases, Contextual Factors, and SDT Need Dynamics

Phase	Phase Title	Key Contextual Resources	Key Contextual Challenges	SDT Needs Implicated
1	Early Transition	Aspirational goals; orientation activities; emerging peer contact	Financial strain; language barriers; unfamiliar academic systems	Autonomy initially supported by aspirations but structurally constrained; competence low due to unfamiliar systems; relatedness tentative with weak or emerging social ties
2	Mid-Year Adjustment	Growing procedural familiarity; peer networks; academic skills support	Increased workload; reduced social time; persistent financial stress	Competence strengthens with adaptation; relatedness stabilizes but remains vulnerable; autonomy constrained by structural limits
3	Assessment Clusters	Coping strategies; informal peer guidance; established study routines	Deadline compression; isolation; winter fatigue and low daylight	Concurrent fluctuation across autonomy, competence, and relatedness; cumulative strain across needs
4	End-of-Year Uncertainty	Postassessment relief; improved routines; warmer weather; peer navigation of services	Employment uncertainty; visa and transition demand	Competence and relatedness stabilize; autonomy narrowed by future-oriented constraints; mixed recovery and worry

Note. Phases represent recurring institutional rhythms across the academic year. Need dynamics indicate how autonomy, competence, and relatedness were experienced as interdependent and temporally contingent.

DISCUSSION

Summary

The findings show that international students' well-being and psychological distress follow recurring patterns shaped by institutional timing. These patterns reflect how autonomy, competence, and relatedness fluctuate in response to the sequencing and concentration of academic demands.

Temporal Mechanisms as Explanatory Lenses

To explain these recurring patterns, the analysis proposes three temporal mechanisms that link institutional organization to psychological experience. *Phase alignment*, *accumulation and release*, and *institutional familiarization* move beyond descriptive accounts of the academic cycle by specifying how and why fluctuations in well-being occur and recur so predictably. In doing so, the study extends SDT by illustrating how the temporal organization of institutional contexts shapes the timing and co-occurrence of psychological need satisfaction and frustration, showing that these processes are not only context sensitive but also temporally structured (Ryan & Deci, 2017, 2020; Vansteenkiste et al., 2020).

Phase alignment demonstrates how the temporal concentration of institutional expectations intensifies strain across autonomy, competence, and relatedness. Deadlines, administrative requirements, financial pressures, and seasonal challenges often clustered within the same narrow timeframes. When this occurred, autonomy narrowed, competence was undermined, and opportunities for connection diminished simultaneously. Distress reflected not only the workload volume but also the temporal concentration of demand. This interpretation aligns with evidence that intensive academic expectations and learning pressures are associated with heightened stress and reduced well-being among students (Jin et al., 2022; Salmela-Aro & Read, 2017). These moments were not exceptional disruptions but features of the academic calendar itself.

Accumulation and release further clarify why recovery remained incomplete even after assessments ended. Pressure developed progressively across successive requirements, with limited opportunities for restoration between tasks. Periods of reduced workload resulted in temporary relief, yet this relief rarely erased earlier strain. Instead, fatigue and emotional depletion lingered or re-emerged in new forms, such as concerns about employment or immigration status. This pattern echoes longitudinal research showing that academic stress and burnout accumulate across time rather than arising from isolated events (Salmela-Aro & Read, 2017). Recovery therefore appeared fragile and conditional, shaped less by students' coping capacity and more by the sequence of institutional expectations.

Institutional familiarization explains why adaptation, although beneficial, did not fully resolve these dynamics. Over time, students developed procedural knowledge, confidence, and peer networks that strengthened their competence and relatedness. Informal communities provided emotional reassurance and practical guidance, which is consistent with research demonstrating the protective role of peer and community connections for international students' well-being (Maharaj et al., 2025; Soong & Mu, 2025). However, these gains largely reflected students learning to navigate systems that remained fundamentally unchanged. Adaptation reduced psychological stress through improved coping but did not eliminate structural constraints (Bourdieu, 1984; Lazarus & Folkman, 1984). When pressures intensified, familiarity alone could not offset compressed deadlines or restricted choice. Responsibility for managing strain thus fell disproportionately on students themselves.

These three temporal mechanisms demonstrate how institutional time helps structure students' experiences. Autonomy, competence, and relatedness rose and fell in synchrony with organisational rhythms rather than with stable individual characteristics. Psychological functioning therefore emerged not only from who students were but also from how universities organized when demands occurred and how support was distributed. In this way, the institution becomes an active producer of the very conditions it later seeks to remedy (Kahu et al., 2020; Tinto, 2017).

Theoretical Contribution to Higher Education Research

By foregrounding the timing and concentration of demands, the analysis shows that fluctuations in well-being are not incidental but are systematically generated through institutional rhythms. This study advances theory in higher education by positioning time as a structuring, rather than an incidental, dimension of student well-being. In doing so, it draws attention to academic calendars, assessment regimes, and institutional procedures as organizing features of student experience. Although established frameworks, including acculturation theory, stress-coping models, and institutional habitus, offer valuable cultural, psychological, and structural explanations of international student experience, they share a common limitation: they are predominantly atemporal (Berry, 1997; Bourdieu, 1984; Lazarus & Folkman, 1984). This limitation obscures how experiences unfold in synchrony with institutional cycles and underestimates the organizing role of time in shaping psychological functioning.

The study also extends the SDT. In higher education research, SDT typically involves conceptualizing psychological needs as situational states measured at discrete time points (Vansteenkiste et al., 2020). In this study, need satisfaction and frustration are examined as rhythm-dependent processes that fluctuate with institutional sequencing and clustering. Psychological needs

are therefore both context sensitive and time sensitive, with compressed schedules intensifying stress and undermining well-being (Deci & Ryan, 2000; Ryan & Deci, 2017).

This study extends existing frameworks rather than replacing them by showing how their explanatory power is shaped by the temporal organization of institutional life. It makes three interrelated theoretical contributions. First, it introduces temporality as an explanatory mechanism that structures *when* and *how* psychological needs are supported or frustrated. Variability in well-being reflects patterned institutional rhythms rather than primarily individual or cultural differences.

Second, it specifies three temporal mechanisms—phase alignment, accumulation and release, and institutional familiarization—which explain how institutional rhythms translate into recurring cycles of strain and recovery. They also clarify why identical demands exert different effects depending on their timing and why adaptation does not consistently protect students when pressures intensify.

Third, it reconceptualizes student well-being as a dynamic and temporally contingent process rather than a static outcome or endpoint of adjustment. In line with broader well-being theory, positive functioning and psychological distress frequently cooccur within the same periods when different psychological needs are simultaneously supported and constrained (Keyes, 2002; Ryan & Deci, 2017).

More broadly, these contributions shift attention from *what* students experience to *when* and under what institutional conditions experiences arise, redirecting explanations from individual characteristics to institutional responsibility. This study offers a framework that captures the cyclical structure of academic life and explains cross-phase fluctuations that existing theories often overlook. In doing so, it complements calls to treat student engagement and well-being as outcomes of institutional design rather than personal characteristics (Kahu et al., 2020; Oades et al., 2021; Tinto, 2017) and supports more dynamic, process-sensitive approaches to well-being and psychological distress (Ryan & Deci, 2020).

Implications for Institutional Practice

Reframing well-being as temporally structured has important consequences for how universities understand their responsibilities. If distress repeatedly emerges at predictable points in the academic cycle, it cannot be attributed primarily to individual weakness or poor coping. Instead, it reflects how institutional systems organize demands and support across time. Student well-being is therefore not only a matter of support provision but also of institutional design.

Institutions often respond to distress by adding services such as counseling sessions, workshops, or resilience training (Cipolletta et al., 2022). Although valuable, these responses leave the underlying rhythms of strain unchanged. Asking students to become more resilient while maintaining compressed deadlines or opaque bureaucratic processes places the burden of adjustment on those with the least control. Such approaches address symptoms rather than the institutional conditions that produce them (Pascoe et al., 2020; Tinto, 2017).

A temporal-process perspective instead calls for institutional redesign. Although this requires coordination and working within constraints, universities can actively reshape the timing and concentration of demands. Assessments can be staggered rather than clustered. Academic and administrative requirements can be distributed more evenly throughout the year. Support services can be proactively aligned with predictable peak periods rather than offered reactively after difficulties escalate. These changes reflect the core SDT principle that autonomy, competence, and relatedness are supported or undermined by contextual conditions, including institutional structures (Ryan & Deci, 2017).

Transparency is equally important. Making institutional rhythms visible to students can normalize fluctuations in well-being, reduce self-blame, and strengthen perceived control. When students recognize that stress during assessment clusters or uncertainty near program completion reflects structural patterns rather than personal failure, they may be better able to anticipate challenges and seek support (Kahu et al., 2020; Oades et al., 2021; Tinto, 2017).

More broadly, these findings invite a shift in institutional mindset. Instead of asking how students can better fit institutional systems, universities might ask how their systems can better fit students. This reorientation recognizes that academic calendars, assessment practices, and policy frameworks are not neutral backdrops but active determinants of psychological functioning. By embedding attention to autonomy, competence, and relatedness into the design of institutional time, universities can create environments that sustain engagement rather than repeatedly deplete it. Well-being therefore becomes a collective and institutional responsibility rather than an individual attribute (Kahu et al., 2020; Oades et al., 2021; Tinto, 2017).

Applying this temporal-process perspective in practice requires aligning institutional action with predictable periods of demand. Rather than distributing support evenly across the year, universities can target resources to phases when autonomy, competence, and relatedness are most likely to be strained.

Table 3 illustrates these phase-sensitive priorities, linking dominant pressures to corresponding institutional responses.

Table 3: Illustrative Institutional Responses to Phase-Specific Pressures

Phase	Dominant Pressures	Institutional Priorities
Early Transition	Unfamiliar systems, financial strain, limited belonging	Structured orientation, peer mentoring, early intervention support
Mid-Year Adjustment	Workload build-up, isolation, seasonal fatigue	Academic skills support, proactive mental health outreach
Assessment Clusters	Assessment concentration, disrupted social connection	Staggered assessments, deadline spacing, accessible counseling, community-building opportunities
End-of-Year Uncertainty	Career, visa, and transition concerns	Integrated visa guidance, career planning, transition and alumni support

Strengths and Limitations

A key strength of this study lies in its temporal-process approach, which enables the analysis of patterns of change in well-being and psychological distress rather than treating these experiences as static outcomes. Thematic analysis supported an in-depth interpretation of how contextual resources and challenges shaped autonomy, competence, and relatedness across the academic year (Braun & Clarke, 2021; Nowell et al., 2017). Conducting interviews in participants' preferred languages enhanced nuance and emotional expression, generating richer accounts of lived experience, although translation inevitably involved interpretive judgment despite efforts to preserve meaning (Temple & Young, 2004).

Several limitations should be considered. The sample included a greater proportion of doctoral students, who typically engage with institutional systems over extended periods and experience different academic demands. This may have shaped the findings and limits transferability to undergraduate and taught postgraduate populations. However, participants across levels reported similar temporal patterns of strain and recovery, suggesting that the identified mechanisms may extend beyond a single level of study.

The interviews were conducted between February and March 2025, a period that may coincide with heightened academic demand in some institutions. Although participants were asked to reflect on experiences across multiple stages of their academic journeys, it is possible that the timing of the interviews influenced how certain experiences, particularly those associated with periods of higher stress, were recalled and emphasized. Moreover, the prominence of these accounts is consistent with the study's focus on how institutional timing concentrates demands across the academic cycle.

For non-English interviews, translations were completed and cross-checked by the research team. Although formal back translation was not performed, collaborative review helped ensure fidelity to participants' intended meanings, although some loss of nuance remains possible (Temple & Young, 2004).

The participants were drawn from universities in the United Kingdom, the United States, and Australia, where academic calendars differ. The temporal phases identified therefore reflect relative institutional rhythms rather than identical structures.

Finally, SDT was used as an interpretive framework rather than a coding schema. The participants did not explicitly frame their experiences in terms of psychological needs, which may limit theory-specific precision. However, this approach maintained analytic openness and grounded the findings in students' own accounts.

Future research directions

Future research can extend these findings by adopting designs that explicitly examine institutional rhythms over time. Longitudinal studies tracking well-being, psychological distress, and psychological need satisfaction and frustration would enable systematic testing of phase alignment, accumulation and release, and institutional familiarization. Sampling across levels of study, disciplines, and national contexts and capturing within-year variation rather than single time points would strengthen the understanding of how these mechanisms operate across settings. Combining longitudinal surveys with targeted qualitative follow-up or experience-sampling approaches may offer particular value in tracing how institutional rhythms interact with contextual resources and challenges as students progress through their programs (Hektner et al., 2007).

In addition to international students, future work could explore how temporal dynamics shape the experiences of other groups navigating constrained choice or limited flexibility, including first-generation and working students. A temporal-process perspective therefore provides a productive agenda for advancing research on student well-being and motivation across diverse higher education contexts.

Conclusion

This study shows that international students' well-being and psychological distress are patterned by institutional rhythms, with autonomy, competence, and relatedness fluctuating systematically across the academic cycle. These experiences arise not only from isolated stressors or individual shortcomings but also from the timing and structural organization of conditions that shape psychological need satisfaction and frustration.

By identifying three temporal mechanisms—phase alignment, accumulation and release, and institutional familiarization—the study explains when and why cycles of strain and recovery emerge and how contextual resources and challenges interact with institutional rhythms. The findings further show that well-being and psychological distress can coexist within the same periods and that familiarity and adaptation do not reliably protect students when pressures intensify.

Viewing well-being as rhythm-dependent reframes it as an institutional responsibility shaped by how time, demands, and support are organized. Institutional design therefore becomes central to creating more equitable, responsive, and sustainable higher education environments.

AI Disclosure Statement

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