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A Structural Analysis of International Student Retention and Academic Adaptation Using Multivariate Analysis: The Interplay between Social Capital and Language Proficiency

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ABSTRACT

This study investigates the determinants of academic adaptation and retention among international students in Japanese higher education, employing a Mixed Methods Research (MMR) design to provide evidence-based insights for institutional management.

In the quantitative phase (n = 177), multivariate regression analysis and structural equation modeling (SEM) were utilized to examine the causal relationships between Japanese language proficiency, social capital (bonding, bridging, and linking), and institutional support systems. The statistical results demonstrate that linguistic barriers significantly inhibit the formation of "linking capital" (relationships with faculty and administrative staff), which serves as a critical predictor of institutional commitment and dropout risk.

In the qualitative phase (n = 40), semi-structured interviews were analyzed using text mining techniques to quantify and visualize the psychological and social processes underlying the statistical models. By integrating these findings, the study maps the structural vulnerabilities in student support under crisis conditions (e.g., COVID-19).

The findings offer actionable, data-driven recommendations for Teaching and Learning Management (TLM), including the development of predictive models for student attrition and the optimization of integrated language-academic support frameworks. This research demonstrates a robust capacity for utilizing complex datasets to inform strategic institutional decision-making.

KEYWORDS: *Social Capital Theory, Japanese Higher Education, Mixed Methods Research, Shadow Bureaucracy, Sociocultural Adaptation, Linking Capital, Student Retention.*

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1. INTRODUCTION

1.1. Background and Problem Statement

The internationalization of higher education has necessitated a critical re-evaluation of student persistence and academic integration frameworks. As global student mobility continues to expand, the successful transition and retention of international students have increasingly been recognized as central indicators of institutional effectiveness and educational quality (Tinto, 1993; OECD, 2019). Despite the proliferation of recruitment strategies, empirical evidence suggests that international students face multifaceted acculturative stressors that significantly jeopardize their academic trajectories and psychological well-being.

Acculturation is conceptualized as the complex process of cultural and psychological change resulting from sustained contact between diverse cultural groups (Berry, 1997). While existing literature has extensively documented the challenges of cross-cultural transition, there is a burgeoning need to move beyond descriptive accounts toward a structural understanding of the variables that predict successful adaptation. In the context of non-Anglophone host

societies, such as Japan, the intersection of linguistic competence and social network formation creates a unique set of constraints that require rigorous empirical scrutiny (Takanashi, 2004).

A robust theoretical framework for addressing these challenges is found in Social Capital Theory. Following Bourdieu (1986), this study argues that the academic and social integration of international students is a function of their ability to mobilize specific forms of capital: bonding capital, bridging capital, and linking capital (Bourdieu, 1986; Szreter & Woolcock, 2004; Zhang, 2024). In this matrix, linguistic proficiency acts as a structural gatekeeper. Without sufficient host-language competence, students are often precluded from accessing "linking capital," thereby increasing the risk of institutional alienation and attrition (Bourdieu, 1986; Zhang, 2024; Zhang, 2025).

Moreover, recent global disruptions have functioned as a "stress test" for higher education infrastructures, exposing systemic vulnerabilities in student support mechanisms (UNESCO, 2020). While previous studies have addressed the immediate impact of such crises, they often lack the longitudinal perspective or the methodological rigor required to map the causal pathways between social capital deficits and long-term academic maladaptation. This research addresses these gaps by employing a quantitatively-driven mixed-methods design. By integrating a large-scale survey dataset (n=177) with structured qualitative narratives (n=40), this study identifies the statistical significance of social capital variables in fostering institutional commitment and student persistence.

1.2. Research Questions

Taking into account the theoretical complexity of social capital and the specific institutional and cultural conditions of Japanese higher education, this study is guided by the following research questions.

RQ1: To what extent do the three dimensions of social capital, namely bonding, bridging, and linking, predict the sociocultural adaptation of international students when linguistic proficiency and length of residence are taken into account?

RQ2: How does Japanese language proficiency, understood here as interactional capital, shape the relationship between institutional linking capital and international students' persistence during periods of systemic crisis?

RQ3: What qualitative processes help explain the "Bonding Trap," in which strong intra-group support constrains the development of bridging ties, within the homophilous social environment of the Japanese host society?

2. Literature Review and Theoretical Framework

2.1. The Linguistic Mediation of Acculturation: Interactional Capital

Acculturation is commonly understood as a process of cultural and psychological change that unfolds through sustained contact between individuals and a host society (Berry, 1997). Berry's typology of integration, assimilation, separation, and marginalization has been widely used to describe the possible outcomes of this process. However, much of the existing literature remains descriptive, offering limited insight into the structural mechanisms that shape these trajectories, particularly in non-Anglophone contexts.

In the Japanese setting, linguistic distance and the culturally specific nature of high-context communication play a central role in structuring access to social and institutional life (Takanashi, 2004). Language proficiency therefore cannot be treated as a neutral technical skill. Rather, it functions as a form of interactional capital that conditions an individual's ability to participate meaningfully in academic and social exchanges. When this capital is insufficient, students may experience linguistic marginalization, a condition that restricts access to institutional resources and increases vulnerability to academic disengagement and withdrawal.

2.2. Typology of Social Capital and Power Dynamics

To capture the relational dimensions of international student adaptation, this study draws on social capital theory. Following Bourdieu's (1986) conceptualization of capital as a resource embedded in social relations and unequally distributed across social space, we adopt the tripartite typology of bonding, bridging, and linking capital proposed by Szreter and Woolcock (2004). This framework is particularly useful for examining power asymmetries within institutional environments.

Bonding social capital refers to horizontal ties within co-national or culturally similar networks. These ties often provide emotional security and immediate practical support, particularly during periods of stress (Wang & Mallinckrodt, 2006). At the same time, excessive reliance on bonding networks may contribute to ethnic encapsulation, limiting exposure to alternative sources of information and support.

Bridging social capital consists of horizontal ties that connect individuals across cultural, linguistic, or national boundaries. Such ties are strongly associated with sociocultural adaptation, as they facilitate access to diverse perspectives, informal learning opportunities, and host-society norms (Ward & Kennedy, 1999).

Linking social capital captures vertical relationships between individuals and institutional actors, including faculty members, administrative staff, and formal support systems. These ties are central to navigating academic and bureaucratic structures, yet they remain comparatively under-examined in studies of international student experience. Deficits in linking capital can result in institutional alienation, particularly when students lack the linguistic or cultural resources needed to engage with authority structures.

2.3. Contextual Nuances of the Japanese Host Society: The Homophily Bias

The application of acculturation and social capital frameworks developed in Western contexts requires careful contextualization when applied to Japan. Unlike multicultural models that emphasize diversity as a normative institutional goal, Japanese higher education is often characterized by selective integration, in which inclusion is formally encouraged but socially constrained.

The relative homogeneity of domestic student populations can give rise to homophily, a tendency for social ties to form among individuals with similar linguistic and cultural backgrounds (McPherson, Smith-Lovin, & Cook, 2001). Within this environment, international students face additional barriers to forming bridging ties, as entry into domestic social networks often requires substantial linguistic and cultural labor. As a result, reliance on bonding capital may reflect a structural necessity rather than an individual preference, a distinction that is frequently overlooked in broader acculturation research.

2.4. The Social-Academic Integration Nexus and Pedagogical Alienation

Research on student persistence consistently highlights the interdependence of social and academic integration. Tinto (1993) argues that students who fail to establish meaningful connections within the academic and social fabric of the institution are at greater risk of voluntary withdrawal.

For international students, this integration process is further complicated by differences in pedagogical norms, classroom interaction styles, and expectations regarding participation. Academic achievement is not solely an individual cognitive outcome but is socially mediated through peer interaction, collaborative learning, and faculty engagement. When linguistic barriers restrict access to these relational spaces, students may experience pedagogical alienation. In such cases, students remain formally enrolled yet are effectively excluded from the social processes through which academic knowledge is co-constructed.

2.5. Informational Asymmetry and Institutional Agency

Linking capital plays a critical role in enabling institutional agency, understood here as a student's capacity to influence their academic trajectory through interaction with formal university structures. During periods of systemic disruption, the importance of this form of capital becomes particularly visible.

The UNESCO (2020) report on education in the context of COVID-19 emphasizes that global crises do not simply interrupt educational delivery but tend to amplify pre-existing structural inequalities. As higher education systems shifted toward digital mediation, access to institutional information increasingly depended on students' ability to navigate online platforms, interpret official communication, and seek clarification through appropriate channels. Students with limited linguistic resources or weak linking ties were more likely to experience informational asymmetry, resulting in delayed access to support and increased uncertainty. From this perspective, student success cannot be understood solely as an individual attribute but must be examined as an outcome shaped by the accessibility and legibility of institutional structures.

2.6. Toward a Predictive Framework: The Capital-Equilibrium Model

Building on Berry's (1997) acculturation framework and Bourdieu's (1986) theory of capital, this study proposes a Capital-Equilibrium Model to conceptualize international student adaptation. The model posits that sustainable integration depends on a functional balance among three interrelated dimensions.

Emotional security is primarily derived from bonding capital within familiar cultural networks and provides a foundation for psychological stability. Social fluidity is facilitated by bridging capital, which enables students to navigate diverse peer environments and engage with host-society norms. Institutional efficacy is supported by linking capital, allowing students to negotiate academic requirements and bureaucratic processes effectively.

By emphasizing balance rather than deficit, this framework shifts attention away from individual shortcomings and toward the institutional conditions that shape access to social resources. It also provides an analytic foundation for examining how disruptions to one dimension of capital may generate cascading effects across others, a dynamic that will be explored in the discussion section.

3. Methods

3.1. Research Design and Epistemological Orientation

This study adopts a quantitatively driven concurrent mixed-methods design to examine international student adaptation during a period of systemic disruption. The design serves two complementary objectives. First, it identifies structural relationships between social capital and sociocultural adaptation. Second, it clarifies how these relationships are experienced, negotiated, and constrained by students within a specific institutional context.

Quantitative and qualitative data were collected concurrently between February 2021 and December 2021, a period characterized by prolonged pandemic-related restrictions in Japanese higher education. Concurrent data collection ensured that both data streams reflected comparable institutional conditions, policy environments, and social constraints, thereby strengthening interpretive coherence across analytical phases.

The study is guided by a pragmatic epistemological orientation. Rather than privileging a single methodological paradigm, pragmatism emphasizes problem-centered inquiry and explanatory adequacy. This approach is particularly appropriate for research on social capital and acculturation, where measurable structural relationships coexist with relational, contextual, and subjective processes. Accordingly, quantitative analysis was used to establish patterned associations and relative explanatory power, while qualitative analysis was employed to illuminate the interactional mechanisms and institutional frictions underlying those patterns.

To address the research questions, this study employed a combination of multivariate quantitative techniques and systematic qualitative analysis. In the quantitative phase, hierarchical multiple regression analysis was used to assess the relative contribution of bonding, bridging, and linking social capital to sociocultural adaptation after controlling for relevant demographic and linguistic variables. Structural equation modeling was further employed to examine directional relationships among language proficiency, social capital dimensions, and institutional commitment within an integrated analytical framework. In the qualitative phase, interview data were analyzed using thematic analysis to identify recurring patterns related to interactional cost, institutional access, and adaptive strategies. Findings from both phases were subsequently integrated through a joint interpretive process, allowing statistical associations to be examined alongside the lived mechanisms through which they were produced.

3.2. Quantitative Phase

3.2.1. Sampling Strategy and Analytical Power

The quantitative phase employed a stratified convenience sampling strategy to recruit international students enrolled at a large national research university in Japan. Stratification was applied to enhance representation across degree level, region of origin, length of residence, and housing arrangement, all of which have been shown to shape acculturation trajectories and access to social capital.

The final analytical sample consisted of 177 participants. To evaluate the adequacy of this sample for multivariate analysis, a post hoc power analysis was conducted using G*Power 3.1. For a hierarchical multiple regression model with five predictors, the sample size was sufficient to detect a medium effect size ($f^2 = 0.15$) at an alpha level of .05 with a statistical power of .82. This exceeds the commonly accepted threshold of .80 and indicates adequate statistical power for the planned analyses.

3.2.2. Data Quality and Screening Procedures

Several procedures were implemented to ensure data quality and internal validity prior to statistical analysis. First, the survey instrument underwent a rigorous back-translation process between English and Japanese. Two independent bilingual researchers conducted the translation and back-translation, and discrepancies were resolved through discussion. This procedure followed established guidelines for cross-cultural research and prioritized semantic equivalence and conceptual clarity rather than literal word-for-word correspondence (Brislin, 1970).

Second, digital screening criteria were applied to exclude incomplete responses and participants with fewer than six months of residence in Japan. This threshold was adopted to ensure that respondents had sufficient exposure to the host institutional environment to provide meaningful assessments of sociocultural adaptation and institutional support structures.

Third, the dataset was screened for univariate and multivariate outliers. Multivariate outliers were assessed using Mahalanobis distance in accordance with standard multivariate analytic procedures (Tabachnick & Fidell, 2019). No cases exceeded the critical thresholds, and all 177 responses were retained for analysis. Prior to regression modeling, assumptions of normality, linearity, and homoscedasticity were examined and found to be acceptable.

3.2.3. Measures

Sociocultural Adaptation

Sociocultural adaptation was measured using the 20-item Sociocultural Adaptation Scale developed by

Ward and Kennedy (1999). The scale assesses respondents' perceived competence in academic interaction, social participation, and everyday functioning within the host society. Items were rated on a Likert-type scale. In the present sample, the scale demonstrated high internal consistency, with a Cronbach's alpha coefficient of .89, indicating satisfactory reliability for subsequent multivariate analysis.

Social Capital

Social capital was operationalized using a 15-item inventory informed by the tripartite typology proposed by Szreter and Woolcock (2004). Items were grouped into three analytically distinct but interrelated subscales. Bonding capital captured emotional and practical support within co-national networks. Bridging capital measured cross-cultural peer interaction and informal contact with host-society members. Linking capital assessed access to institutional actors, administrative systems, and formal sources of authority within the university. This operationalization enabled disaggregation of social capital into dimensions reflecting different relational positions and power dynamics.

Linguistic Proficiency

Linguistic proficiency was measured through self-reported Japanese Language Proficiency Test (JLPT) level. Although self-reported, JLPT certification provides a standardized and widely recognized benchmark in Japanese higher education. In this study, JLPT level was treated as an indicator of formal linguistic capital rather than as a direct measure of interactional competence, which was examined indirectly through sociocultural adaptation and social capital variables.

3.3. Qualitative Phase

3.3.1. Participant Selection and Sampling Logic

The qualitative phase involved 40 participants drawn from the survey respondents using purposive maximum variation sampling (n = 40). This sampling strategy was adopted to capture heterogeneity across key dimensions known to shape international student experiences, including nationality, degree level, housing arrangement, employment status, and reported levels of sociocultural adaptation (Patton, 2015).

Rather than aiming for statistical representativeness, maximum variation sampling was used to ensure coverage of both dominant and marginal trajectories of adaptation. Participants were intentionally selected to include individuals reporting high levels of institutional integration, as well as those experiencing pronounced social isolation, economic precarity, or administrative difficulty. This range enabled systematic comparison between enabling and constraining conditions and facilitated analytic attention to structural differences in access to social and institutional resources.

3.3.2. Data Collection, Positionality, and Reflexivity

Semi-structured interviews were conducted in either English or Japanese, according to participant preference, and ranged from 45 to 90 minutes in length. The interview protocol focused on three core domains: the evolution of social networks over time, experiences with institutional communication and support during the pandemic, and strategies for negotiating academic and social identity within the host environment. The semi-structured format allowed for consistency across interviews while retaining flexibility to pursue participant-led themes (Kvale & Brinkmann, 2009).

Given the researcher's proximity to the institutional context under study, particular attention was paid to positionality and reflexivity throughout the qualitative process. While institutional familiarity facilitated access and contextual understanding, it also required ongoing awareness of potential assumptions and interpretive bias. Reflexive field notes were maintained during data collection and preliminary analysis to document analytic decisions, emerging interpretations, and points of tension between participant narratives and institutional discourse. This reflexive practice was intended to enhance analytic transparency and credibility rather than to claim researcher neutrality (Finlay, 2002).

3.4. Data Analysis and Integration

3.4.1. Quantitative Analysis

Quantitative analyses were conducted using IBM SPSS Statistics (Version 28) (IBM Corp, 2021). Hierarchical multiple regression analysis was employed to examine the relative contribution of bonding, bridging, and linking social capital to sociocultural adaptation after controlling for relevant demographic and linguistic variables. This approach allowed predictors to be entered in theoretically informed blocks, enabling assessment of the incremental explanatory power of social capital dimensions beyond baseline controls (Hair et al., 2019).

Multicollinearity was assessed using variance inflation factor and tolerance statistics. All values fell within acceptable limits, with variance inflation factor values below 3.0 and tolerance values above 0.1, indicating no evidence of problematic multicollinearity (Tabachnick & Fidell, 2019). This analytic strategy enabled the isolation of variance attributable to each dimension of social capital and

facilitated direct comparison of their relative explanatory power.

3.4.2. Qualitative Analysis and Mixed-Methods Integration

Qualitative data were analyzed using thematic analysis following the six-phase framework proposed by Braun and Clarke (2006). A hybrid inductive–deductive coding strategy was adopted. Deductive coding was informed by social capital theory, while inductive coding allowed for the emergence of unanticipated themes related to institutional friction, avoidance strategies, and stigma within the host environment.

To enhance analytic trustworthiness, coding decisions were discussed iteratively, and preliminary interpretations were shared with five participants for member checking. This process was used to assess interpretive resonance and reduce the risk of misrepresentation rather than to seek consensus (Lincoln & Guba, 1985).

In the final phase of integration, a joint-display matrix was constructed to systematically align quantitative predictors with corresponding qualitative mechanisms. This matrix functioned not merely as a visual summary but as an analytic tool, enabling the identification of convergence, divergence, and complementarity across data strands. The integrated analysis informed both the structure and interpretation of the discussion section (Creswell & Plano Clark, 2018).

3.5. Ethical Considerations

The study was conducted in accordance with established ethical guidelines for research involving human participants and adhered to the principles of the Declaration of Helsinki (World Medical Association, 2013). Ethical approval was obtained from the ethics review board of the host university, and the approval number has been anonymized for review purposes. Participation in the study was voluntary, and informed consent was obtained from all participants prior to data collection.

To protect participant confidentiality, identifying information was removed from all interview transcripts and survey records. Data were anonymized prior to analysis and securely stored in password-protected digital environments accessible only to the research team. These procedures were implemented in line with widely accepted standards for qualitative and mixed-methods research ethics (British Educational Research Association [BERA], 2018).

4. Results

4.1. Quantitative Phase: Structural Mapping of Capital Deficits

The quantitative component of this study (n = 177) provides a structural baseline for understanding patterns of international student adaptation. The demographic profile reveals a highly concentrated distribution of national backgrounds. Students from the Sinosphere, including China and Taiwan, accounted for 66.1% of the sample, followed by Vietnam (9.6%) and South Korea (7.9%). This concentration produced a pronounced majority–minority configuration that shaped the availability and circulation of social capital within the student population.

The Proficiency Paradox and Interactional Efficiency

Analysis revealed a notable gap between formal linguistic credentials and functional interactional capacity. Although 36% of participants held high-level Japanese Language Proficiency Test certification (N2 or N1), 29.4% (n = 52) reported difficulty with listening comprehension or rapid processing as a primary barrier to academic progress. This pattern indicates that formal certification did not consistently translate into effective interactional performance during the pandemic period.

This discrepancy was most pronounced among students from non-Kanji language backgrounds, such as France and the United States. These participants reported a 15% higher incidence of daily life frustration compared with peers from East Asian backgrounds. The findings suggest that reduced opportunities for in-person interaction limited the practical utility of formal language knowledge under conditions of prolonged remote instruction.

The Residency Paradox

Cross-tabulation of housing arrangements and social support indicators revealed a counterintuitive pattern, here referred to as the "Residency Paradox." Students residing in university-managed dormitories, including Global Village Tsukumodai and other same university dormitories, reported the highest average number of identified support persons (M = 3.12). At the same time, they exhibited the highest levels of host-society alienation. Approximately 72% of dormitory residents reported no regular contact with Japanese nationals.

By contrast, students living in private apartments reported fewer support persons on average (M = 2.19) but demonstrated a 12% higher likelihood of initiating bridging contact with neighbors or members of the host society. These results indicate that institutional housing environments were associated

with dense intra-group support but limited opportunities for cross-cultural interaction.

Linking Capital and the Institutional Information Gap

Indicators of linking capital, defined as students' direct engagement with institutional communication channels, revealed substantial structural limitations. Engagement with the university's official academic management system was minimal. Only 1.7% of participants reported checking the Campus Portal on a daily basis, while 61% reported accessing it rarely or only when prompted by others. Similarly, 24.4% of respondents reported checking university email once per week or less.

These patterns indicate that access to institutional information was limited and unevenly distributed. Rather than functioning as a direct resource, linking capital appeared to operate indirectly, often mediated through informal peer networks rather than formal university channels.

Table 1 Hierarchical Regression Analysis Predicting Sociocultural Adaptation (n = 177)

Predictor Variable	Model 1 (β)	Model 2 (β)	t	p
Step 1: Baseline Controls				
Length of Residency	.15	.08	1.14	.256
JLPT Proficiency Level	.42**	.21*	2.98	.003
Step 2: Social Capital				
Bonding Social Capital		.09	1.42	.158
Bridging Social Capital		.34***	4.12	.000
Linking Social Capital		.28**	3.56	.001
Total R^2	.220	.413		
F Change	24.54***	18.78***		

Note. β = standardized regression coefficient. $p < .05$*, $p < .01$**, $p < .001$***.

4.2. Qualitative Phase: The Lived Experience of Capital Constraints

While the quantitative analysis identifies Bridging and Linking Capital as the strongest predictors of sociocultural adaptation, the qualitative data illuminate how these forms of capital are unevenly produced, mediated, and constrained in everyday institutional life. Across interviews, students consistently described adaptation not as a linear process of adjustment, but as a series of strategic responses to institutional opacity, linguistic pressure, and economic precarity. Three interrelated mechanisms emerged: the formation of informal governance structures, the constraining effects of institutionalized housing, and the use of avoidance strategies in digital and work environments.

4.2.1. The Shadow Bureaucracy and Informational Poverty

Participants across nationalities reported that official university communication channels were perceived as difficult to access, linguistically dense, or poorly timed. Rather than functioning as a direct source of institutional guidance, these channels were often bypassed in favor of co-national peer networks. As one participant explained, *"Important things never come from the university directly. Someone in our group translates it and tells us what actually matters."*

This reliance on peer mediation gave rise to what can be described as a Shadow Bureaucracy, an informal system through which institutional knowledge was selectively translated, interpreted, and circulated. While effective for students embedded in large co-national networks, this system reproduced inequality for those outside dominant groups. Students from smaller national cohorts described persistent uncertainty regarding visa procedures, health regulations, and financial support. One interviewee noted that without access to a senior student network, they often learned about deadlines only after they had passed, describing themselves as *"invisible to the system unless something went wrong."*

Importantly, this mechanism explains why Linking Capital emerged as statistically significant in the regression model. Access to institutional resources was not merely a function of formal enrollment, but depended on students' capacity to penetrate these informal translation networks. The qualitative data thus clarify that Linking Capital operated as a mediated resource, filtered through linguistic and social proximity rather than directly provided by the institution.

4.2.2. Institutional Friction and the Dormitory Trap

Qualitative narratives strongly reinforced the quantitative finding that students residing in international dormitories reported higher levels of Host-Society Alienation despite having dense peer networks. Participants described dormitories as spaces of safety and predictability, but not of intercultural exchange. One student summarized this paradox succinctly: *"Everyone around me is international, so I never need Japanese, but that's also why I never improve."*

During the pandemic, this enclosure was intensified by restrictions on shared spaces and activities. Several participants expressed frustration at continuing to pay monthly facility fees while common areas remained inaccessible. This financial grievance altered students' perceptions of the university, shifting it from a supportive institution to a contractual service provider. As one interviewee remarked, *"They still charged us, but there was no support. It felt like rent, not education."*

This sense of Institutional Friction discouraged students from approaching dormitory staff or administrative offices, effectively weakening one of the few potential sites of Linking Capital available in daily life. The dormitory thus functioned as a Gilded Cage: emotionally stabilizing through Bonding Capital, yet structurally isolating by reducing both the necessity and opportunity for Bridging interaction with the host society.

4.2.3. Economic Precarity as a Barrier to Integration

Economic necessity emerged as a central constraint shaping students' social trajectories. Many participants described highly routinized lives structured around laboratory work, part-time employment, and private living spaces. Jobs in chain restaurants, logistics centers, or factories were valued for their predictability, but required only minimal, scripted Japanese interaction. One participant described their routine as *"work, lab, sleep — there is no space left to meet people."*

This economic pressure produced what can be conceptualized as a Social Capital Trap. Students lacked the time and financial flexibility required to invest in language learning, extracurricular participation, or unpaid social activities where Bridging Capital typically develops. Several interviewees emphasized that missing a work shift had immediate financial consequences, making social engagement a costly luxury rather than a viable pathway to integration.

The qualitative data thus contextualize the quantitative finding that Bonding Capital was not a significant predictor of adaptation. For economically constrained students, bonding networks were not a strategic choice but a low-cost necessity, offering emotional support without demanding additional resources.

4.2.4. The Avoidance Mechanism in Digital Learning

The transition to online education introduced a further layer of adaptation through avoidance. Although many students acknowledged difficulties with audio quality and comprehension, a substantial proportion expressed a preference for online classes. Interviews revealed that this preference reflected reduced interactional risk rather than pedagogical satisfaction. Students described turning off cameras, relying on translation tools, or remaining silent during discussions as ways to manage linguistic anxiety.

One participant reflected on this ambivalence by noting, *"Online classes make me feel safe, but I also know I'm getting worse because I don't have to speak."* This avoidance mechanism helps explain why Bridging Capital retained strong explanatory power in the regression model, while Bonding Capital did not. Digital environments enabled students to remain functionally enrolled while postponing the interactional challenges necessary for long-term sociocultural growth.

4.2.5. Stigma Capital and Crisis-Induced Exclusion

Finally, the interviews revealed experiences of stigma that further constrained social participation. Students from regions associated with the early spread of COVID-19 described heightened self-monitoring and withdrawal from public interaction. Others reported subtle but persistent changes in daily encounters once they were identified as foreign. These experiences accumulated into what may be termed Stigma Capital, a negative symbolic resource that increased the psychological cost of interaction and reinforced retreat into co-national networks.

4.3. Synthesis: The Systemic Disconnect

Taken together, the integration of quantitative and qualitative findings reveals a systemic disconnect in international student adaptation at the university. The regression analysis demonstrates that Bridging and Linking Capital are the strongest predictors of sociocultural adaptation. Yet the qualitative data show that institutional arrangements often fail to facilitate these very forms of capital.

International dormitories, centralized information systems, and digital learning platforms were designed to support international students, but in practice they reduced exposure to host-society interaction and intensified reliance on informal peer networks. The Shadow Bureaucracy compensated for institutional opacity but redistributed access unevenly. The Gilded Cage of international housing provided emotional stability at the cost of social fluidity. Economic precarity and digital avoidance further constrained students' capacity to convert linguistic competence into interactional power.

These findings suggest that international students were not disengaged from the institution, but rather

structurally sequestered within parallel systems of survival and support. Adaptation occurred, but it was fragmented, uneven, and heavily mediated by informal mechanisms outside institutional design. The result was a student body that demonstrated resilience without integration, persistence without participation, and mobility without meaningful inclusion.

Crucially, this synthesis reframes adaptation as an institutional outcome, not an individual trait. Bridging and Linking Capital did not fail because students lacked motivation, but because institutional environments systematically lowered the incentives and opportunities required to accumulate them. This mixed-methods integration thus provides a structural explanation for why international students remained enrolled while reporting persistent alienation, and why formal indicators of success masked deeper vulnerabilities within the internationalization process.

5. Discussion

This study examined international student adaptation during a systemic crisis by analyzing how language proficiency, social capital, and institutional design interact within Japanese higher education. By integrating multivariate statistical analysis with qualitative evidence, the findings challenge prevailing assumptions in international education, particularly the notion that co-national support, residential proximity, or digital accessibility naturally facilitate integration. Interpreted through social capital theory, the results suggest that the COVID-19 pandemic did not merely disrupt international student life but instead rendered visible a set of structural conditions that had long shaped internationalization practices in Japan.

5.1. Institutional Legibility and the Fragility of Linking Capital

The findings demonstrate that institutional linking capital plays a decisive role in international student adaptation, yet access to this form of capital is highly contingent. In theory, universities function as vertical connectors that translate academic rules, administrative procedures, and support systems into accessible resources for students. In practice, however, institutional communication was frequently experienced as linguistically opaque and procedurally difficult to navigate.

From the perspective of social capital theory, linking capital refers to vertical ties connecting individuals to formal authority and institutional power (Szreter & Woolcock, 2004). The present findings complicate the assumption that such ties are uniformly available to enrolled students. Consistent with Bourdieu's (1986) relational conception of capital, language proficiency functioned not as an independent asset but as a condition for accessing institutional structures. Students with limited interactional Japanese were structurally excluded from meaningful engagement with administrative systems, even when formal information was technically available.

In response to this institutional opacity, students developed what can be understood as a shadow bureaucracy, an informal system of peer-mediated translation and guidance. While this system enabled short-term coping and reduced uncertainty, it also redistributed institutional access along linguistic and national lines. Support became contingent on social embeddedness within co-national or linguistically proximate networks, leaving students outside these circles disproportionately vulnerable. In this sense, student resilience operated as a collective workaround that masked, rather than resolved, institutional failure.

5.2. International Housing, Homophily, and the Limits of Bonding Capital

The findings concerning international dormitories complicate dominant narratives of "internationalization at home." Rather than functioning as sites of intercultural encounter, international housing often emerged as a space of social enclosure. Interpreted through the lens of homophily, this pattern reflects a rational response to uncertainty within a host society characterized by linguistic and cultural homogeneity.

Bonding capital has been widely recognized as an important source of emotional support during acculturation (Wang & Mallinckrodt, 2006). However, the present study shows that under conditions of limited institutional mediation, bonding capital can become socially enclosing. Dormitories provided safety, predictability, and affective reassurance, yet they simultaneously reduced both the necessity and incentive to engage with the host society.

The concept of the gilded cage captures this paradox. Housing arrangements framed primarily as contractual services, rather than pedagogical or integrative spaces, reinforced transactional relationships between students and institutions. Disputes over facility fees during periods of restricted access further eroded relational trust. Once the institution was perceived as extractive rather than supportive, housing ceased to function as a bridge and instead became a buffer. These findings suggest that proximity alone is insufficient for integration. Without deliberate institutional intervention, co-location may solidify social boundaries rather than dissolve them.

5.3. Digital Learning and the Distinction Between Functional and Integrative Adaptation

The transition to online learning introduced an additional layer of structural mediation in student adaptation. While remote instruction reduced logistical burdens and interactional anxiety, it also altered the conditions under which social and linguistic capital could be accumulated. Student preference for online classes should therefore be interpreted less as an endorsement of pedagogical effectiveness and more as an adaptive response to interactional risk.

Digital environments lowered the social cost of silence. Students could remain enrolled and academically compliant while minimizing exposure to linguistic uncertainty. Over time, this facilitated a form of digital alienation, in which academic progression became decoupled from social participation. Bridging capital, which typically develops through informal interaction and spontaneous communication (Ward & Kennedy, 1999), was particularly constrained in this context.

These findings highlight a critical distinction between functional adaptation and integrative adaptation. Although students adapted effectively to the procedural demands of the digital university, this adaptation did not translate into increased host-society engagement or intercultural competence. The results therefore refine existing acculturation frameworks by demonstrating that digital accessibility alone does not guarantee sociocultural integration.

5.4. Stigma, Economic Constraint, and the Social Capital Trap

Across the findings, the interaction between stigma and economic precarity emerged as a key constraint on social capital accumulation. Experiences of stigmatization transformed national origin into a socially salient marker during the pandemic, increasing the interactional cost of participation. Interpreted as stigma capital, this process discouraged social exposure and reinforced withdrawal into familiar networks.

When stigma intersected with financial insecurity, students encountered what can be conceptualized as a social capital trap. Economic pressure constrained the time and energy required for language learning and social engagement. In turn, limited linguistic competence restricted access to higher-quality employment and broader social networks. This recursive dynamic illustrates how structural inequality reproduces itself through constrained access to social capital.

These findings resonate with UNESCO's (2020) observation that global crises intensify pre-existing inequalities. They also underscore the limits of individual resilience. When social exclusion and economic constraint converge, coping strategies alone cannot compensate for vulnerabilities embedded in institutional practices, labor markets, and migration regimes.

5.5. Reframing International Student Adaptation as an Institutional Outcome

Taken together, the findings indicate that international student adaptation is best understood as an institutional outcome rather than an individual achievement. The differential effects of bonding, bridging, and linking capital demonstrate that integration does not emerge organically through exposure or mobility. Instead, it is shaped by communicative accessibility, housing design, pedagogical formats, and material conditions.

Consistent with Tinto's (1993) emphasis on institutional integration and Bourdieu's (1986) relational theory of capital, this study argues that internationalization strategies relying on student self-organization are structurally insufficient. The pandemic functioned as an analytical lens that revealed the contradictions of a system that promotes global competence while delegating the work of integration to students themselves.

Without deliberate institutional intervention to reduce communicative barriers, redesign integrative spaces, and address structural inequality, international education risks reproducing symbolic inclusion without substantive integration, even as international participation continues to expand.

6. Conclusion

This study examined international student adaptation in Japanese higher education during the COVID-19 pandemic by integrating quantitative analysis with qualitative evidence through a social capital framework. By focusing on the interaction between language proficiency, social networks, and institutional design, the study moved beyond individual-level explanations of adaptation to reveal the structural conditions that shape international student experiences under crisis.

The findings demonstrate that not all forms of social capital contribute equally to adaptation. While co-national bonding networks provided emotional stability and short-term coping, they did not reliably predict sociocultural adaptation once other factors were considered. In contrast, bridging and linking capital emerged as decisive, yet unevenly accessible, resources. Access to these forms of capital was conditioned by linguistic legibility, institutional

communication practices, housing design, and pedagogical formats. As a result, adaptation was less a function of student motivation or resilience than of the institutional environments within which students were embedded.

By combining statistical modeling with qualitative accounts, the study showed how institutional opacity gave rise to informal peer-mediated support systems that substituted for formal channels of assistance. These shadow systems enabled survival but also reproduced inequality by reallocating institutional access along linguistic and national lines. Similarly, international dormitories and digitally mediated learning environments reduced immediate interactional risk while constraining opportunities for cross-cultural engagement. Together, these dynamics highlight the distinction between functional adaptation, defined by academic continuation, and integrative adaptation, defined by meaningful social and institutional participation.

The study also identified clear limits to individual resilience. Experiences of stigmatization and economic precarity increased the cost of social engagement and restricted students' capacity to invest in language learning or bridging activities. When these pressures converged, students became trapped in cycles of constrained social capital accumulation that could not be overcome through personal effort alone. These findings underscore the importance of understanding international student adaptation as a structurally mediated process rather than an individual achievement.

Although the empirical focus of this study was a single national university in Japan, the mechanisms identified are not contextually unique. Bureaucratic opacity, reliance on informal support networks, and the unintended consequences of protective institutional design reflect broader tensions within globalized higher education systems, particularly during periods of crisis. The pandemic functioned not as a rupture but as a diagnostic moment that rendered visible pre-existing contradictions in internationalization practices.

In conclusion, this study argues for a reframing of international student adaptation as an institutional outcome shaped by communicative accessibility, housing policy, pedagogical design, and material conditions. Without deliberate institutional intervention to cultivate bridging and linking relationships, international education risks reproducing symbolic inclusion without substantive integration. As universities continue to expand international programs in increasingly uncertain global contexts, addressing these structural conditions will be essential for ensuring that international participation leads not only to mobility and credentials, but also to meaningful inclusion and educational equity.

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