

# Evaluating Student Satisfaction: A Small Private University Perspective in Japan

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## Abstract

This study investigates undergraduate student satisfaction at a small private university in Japan, focusing on factors like social environment, instructors, facilities, support, academic grit, and student engagement. Given Japan's demographic challenges and the heightened competition in higher education, understanding these factors is crucial for student retention and institutional stability. The study employs a quantitative approach, analyzing data from a sample that mirrors the university's demographic composition. Key findings reveal that instructors, facilities, and support significantly influence student satisfaction, with distinct variations observed when analyzed by gender and academic year. In contrast, grit and engagement were not statistically significant predictors; their roles in the broader educational context warrant further exploration. This study reveals actionable strategies to elevate student satisfaction at a small private Japanese university, addressing institutional, administrative, and instructional dimensions. Recommendations include upgrading facilities and enhancing the social atmosphere to foster a conducive learning environment, focusing on faculty development to improve instructional quality, and tailoring engagement strategies to meet gender-specific and year-specific needs. These measures aim to mitigate challenges like declining enrollment and student attrition by creating a more fulfilling university experience and strengthening the institution's reputation and appeal.

**Keywords:** academic support, higher education, Japanese universities, student satisfaction, university facilities

## 1. Introduction

### 1.1 Study Background

The global landscape of higher education, and particularly in Japan, is marked by a complex interplay of demographic shifts, competitive pressures, and financial challenges. With declining birth rates and a reduced youth population, Japanese universities, especially private institutions, are experiencing significant strain. The anticipated number of 18-year-olds, the primary demographic for first-year university enrollees, is projected to be approximately half of what it was in 1990 and only around 40% of the population in the late 1960s, according to the Statistics Bureau of Japan (2022). This demographic trend poses a critical challenge for higher education institutions, especially in a context where international student recruitment, despite moderate increases, only accounts for about 10% of total university enrollment as of 2022, with a significant portion of these students coming from China (Japan Student Services Organization [JASSO], 2022).

Private universities in Japan, particularly smaller ones, find themselves in an increasingly precarious situation. Traditionally reliant on public subsidies and tuition fees, these institutions face a financial squeeze as governmental support wanes and the pool of potential domestic students shrinks (Wei, 2023). The limited revenue streams from endowments, gifts, and auxiliary activities exacerbate this situation. As a result, institutions struggling to attract sufficient enrollment face the grim prospect of bankruptcy and closure, a concern highlighted by Huang (2018). This scenario underscores the pressing need for these universities to reevaluate and innovate their operational and academic strategies.

In this complex and competitive environment, smaller Japanese private universities must address the growing

challenges of declining domestic enrollment, increased operational costs, and heightened market-driven student expectations. This situation has forced institutions to adopt cost-cutting measures, which, as indicated by Yonezawa (2020) and Chen and Huang (2023), often lead to compromised program quality and weakened academic and social integration. The resultant erosion in the value of the educational experience can trigger a reassessment of institutional choice among students, increasing the dropout risk (Kerby, 2015; Scott & Asavisanu, 2023; Yamada, 2018). In this context, understanding and enhancing student satisfaction becomes crucial for maintaining student retention, building institutional reputation, and potentially improving enrollment numbers.

### *1.2 Study Aim*

This paper aims to examine the perceived satisfaction of undergraduate students at a small private university in Japan, a setting characterized by its vulnerability due to limited enrollment capacities and high dependence on student persistence and tuition revenue. To gauge their impact on student satisfaction, the study focuses on predefined variables, including (social environment, instructors, facilities, support, academic grit, and student engagement)

This choice of institution and variables stems from the recognition that smaller universities, with their increased susceptibility to market and demographic changes, provide a critical context for examining student satisfaction factors. By analyzing these variables, the study seeks to illuminate the dimensions that significantly contribute to students' satisfaction levels, which, in turn, can inform strategies to enhance the quality of education and student life at such institutions.

Understanding student satisfaction in this context is imperative for these smaller universities to navigate their challenges. Satisfied students are more likely to continue their education at the same institution, thereby stabilizing enrollment numbers. Additionally, positive student experiences can lead to an enhanced institutional reputation, which is crucial in a competitive educational landscape. Therefore, this study's exploration into the various facets of student satisfaction at a small private Japanese university aims to provide insights that could aid in improving student retention, enhancing institutional reputation, and ultimately contributing to the stability and growth of these education providers in a rapidly evolving higher education sector. Given this backdrop, the study presents the following research questions:

1. What is the relationship between key factors such as social environment, instructors, facilities, support, academic grit, student engagement, and overall student satisfaction at a small private university in Japan?
2. Does the relationship between these key factors and student satisfaction differ when analyzed separately for male and female students?
3. How does the relationship between these factors and student satisfaction change across different academic years, reflecting students' evolving priorities and experiences from their first to their final year?

Including these research questions is justified by the need to comprehensively understand the multifaceted nature of student satisfaction within the unique context of a small private Japanese university. By exploring the general impact of various factors on satisfaction and further dissecting this impact by gender and academic year, the study aims to provide insights that are academically robust and practically relevant. This nuanced understanding is crucial for informing targeted strategies and policy decisions that can enhance the student experience, contribute to the institution's stability, and address the broader challenges faced by the higher education sector in Japan.

### *1.3 Theoretical Framework*

In examining student satisfaction at a small private university in Japan, social capital theory, as conceptualized by Putnam (2000), provides a foundational understanding. This theory underscores the importance of social networks and relationships in accessing resources and information. A supportive social environment within a university fosters robust social connections among students. These connections facilitate access to diverse resources, including academic and emotional support, which is pivotal for student satisfaction.

Instructors play a significant role in shaping this social environment. Positive interactions between students and instructors, highlighted in Tinto's (1997) work, enhance communication and rapport. These interactions contribute to the development of social capital by improving academic understanding and facilitating networks beyond the classroom. Such networks offer platforms for meaningful engagement between students, faculty, and peers, enriching the educational experience and satisfaction. The support systems within the university,

encompassing peers, faculty, and staff, are integral to forming social capital. Bourdieu (1986) emphasizes how accessible support strengthens social networks and capital, influencing student satisfaction. A robust support system enhances students' sense of belonging and satisfaction with their university experience. This aspect highlights the critical role of a comprehensive support network in fostering a conducive learning environment.

Expectancy-Value Theory, formulated by Eccles et al. (1983), offers insights into the influence of students' expectations and values on their academic behaviors and satisfaction. The role of university facilities is significant in this context. When facilities align with students' expectations and are perceived as conducive to learning, they enhance student satisfaction. This alignment is essential in shaping the educational experience, as Wigfield and Eccles (2000) suggested.

Grit, defined by Duckworth et al. (2007) as perseverance and passion for long-term goals, is closely linked to the Expectancy-Value Theory. Students' expectations and the value they place on educational achievements influence their level of grit. High values and positive expectations regarding educational pursuits lead to increased perseverance, influencing satisfaction. This connection illustrates the impact of personal determination and goal-setting on student satisfaction. Expectancy-value theory profoundly influences student engagement. Pintrich (2003) notes that students who perceive their educational experience as valuable are likelier to engage actively in learning activities. This engagement, driven by coursework's perceived relevance and importance, directly affects their satisfaction with the university experience. It underscores the importance of aligning educational content with students' interests and aspirations.

This study employs Social Capital Theory and Expectancy-Value Theory, enriched by a small private Japanese university's unique institutional, social, and cultural contexts. The intimate educational setting fosters robust social networks, essential for accessing diverse resources and support, aligning with Putnam's (2000) views on social capital. Japanese cultural values of community and harmony further enhance these networks, integrating Tinto's (1997) insights on the pivotal role of positive student-instructor interactions in building social capital.

Culturally, the Confucian respect for education amplifies the impact of instructors, aligning with the high societal value placed on perseverance and educational achievement (Wicking, 2019). This cultural backdrop enriches the Expectancy-Value Theory application, where students' motivation and engagement are significantly influenced by cultural expectations and the value placed on long-term goals. Incorporating these theories within a Japanese specific institutional and cultural context provides a nuanced understanding of student satisfaction. It bridges the theoretical framework with the real-world dynamics of Japanese higher education, offering a concise yet comprehensive basis for examining and enhancing student satisfaction.

## **2. Method**

### *2.1 Study Design*

This research employs a case study approach with a cross-sectional design to quantitatively analyze undergraduate student satisfaction at a small private university in Japan. Opting for a case study methodology enables an in-depth examination of this educational setting (Crowe et al., 2011), providing detailed insights into the nuanced factors influencing student satisfaction. The choice of a cross-sectional design is pivotal, as it allows for data collection at a singular point in time, offering a snapshot of current student attitudes and experiences. This approach is particularly effective in capturing the dynamics of student satisfaction within the unique cultural and educational context of Japan, ensuring that the findings are relevant and context-specific.

In this study, triangulation is employed as a methodological tool to enhance the rigor and depth of the analysis. The triangulation method is three-pronged: theoretical, investigator, and data. Theoretical triangulation involves the application of capital theory and expectancy-value theory. By incorporating these two theoretical frameworks, the study gains a multifaceted understanding of student satisfaction, addressing the complex interplay of social interactions, personal expectations, and value systems within the educational experience.

Investigator triangulation in this research is achieved through the involvement of multiple researchers in the data analysis process (Turner & Turner, 2009). This approach is instrumental in reducing individual biases and broadening the interpretive scope of the findings. With several researchers analyzing the data, the study benefits from diverse perspectives and interpretations, leading to a more comprehensive and balanced understanding of the phenomena under investigation. This multiplicity of viewpoints is crucial in ensuring the analysis is thorough and reflects a range of academic insights (Bans-Akutey & Tiimub, 2021).

Data triangulation is a critical component of this study's design, given the diversity of the participant sample despite the single-university focus. The participant pool includes students of varying genders and academic levels, encompassing different years of study. This diverse sample allows for a broad exploration of student

satisfaction across various demographics and academic stages within the university. By capturing the experiences and perceptions of a wide range of students, the study ensures a more representative view of student satisfaction, enhancing the generalizability and applicability of the findings.

The methodological design of this study, with its case study and cross-sectional approach supported by a triangulated framework, is carefully chosen to align with the research objectives. It aims to provide a comprehensive and nuanced understanding of undergraduate student satisfaction at a Japanese private university. This approach ensures that the study is well-positioned to uncover the complex and multifaceted nature of student satisfaction, providing deep and broad insights. Integrating diverse methodological elements reinforces the study's commitment to producing robust, well-rounded research findings.

## 2.2 Study Population

The study's population comprises undergraduate students currently enrolled in a small private university in Japan. For this research, an undergraduate student is defined as any individual actively enrolled in and taking classes at the university. This institution's total student body size is approximately 1,520 students, providing a substantial population for the study. The university houses three distinct departments: Economics, Rehabilitation (Physical Therapy and the Japanese Language College. However, the Japanese Language College, primarily catering to international students, is excluded from this study to maintain a focus on domestic undergraduate experiences. The academic programs offered at this university span three years, creating a dynamic and diverse student body in terms of academic progression.

While this study focuses on domestic undergraduates at a small private university in Japan, it is essential to contextualize these findings within the broader landscape of Japanese higher education. Yonezawa (2020) noted that the Japanese higher education system is characterized by a relatively homogeneous student population with limited foreign national inclusion. This homogeneity is a defining feature of the domestic student body at the undergraduate level. Therefore, our study's focus on domestic students aligns with the general trends in Japanese higher education. However, excluding international students, who represent a small but significant portion of the student population, should be acknowledged as a potential limitation in diversity and representativeness. The exclusion of the Japanese Language College, mainly catering to international students, could introduce certain biases. International students often bring different perspectives and experiences to their educational journey (Yonezawa et al., 2023). Future research might consider including such diverse student populations to ensure a more comprehensive understanding of student satisfaction across varied backgrounds.

The Krejcie and Morgan formula, particularly suited for educational research settings, was applied to determine the sample size required for robust quantitative analysis. The formula, as outlined in Krejcie and Morgan's (1970) seminal work, is given by:

$$SS = \frac{X}{1 + \frac{(X-1)}{N}}$$

Where:

SS stands for the required sample size for the study.

X represents the table value from Krejcie and Morgan's sampling table, corresponding to the desired confidence level and margin of error.

N denotes the total population, in this case, 1,520 students.

Using this formula, with a 95% confidence level for a population of 1,520 students, the calculated sample size is 307. This sample size is adequate for conducting a comprehensive linear regression analysis, as it exceeds the minimum sample size recommendations suggested by several researchers in the field. For example, Green (1991) proposes  $N=50+8m$  (where  $m$  is the number of predictors), yielding a minimum of 98 cases. VanVoorhis and Morgan (2007) suggest at least 15 cases per predictor, amounting to a minimum of 90 cases. Furthermore, Tabachnick and Fidell (2013) recommend a minimum of 20 cases per predictor, leading to at least 120 cases. Therefore, with a sample size of 307, the study ensures statistical validity and reliability in its analysis.

## 2.3 Instrument, Distribution, and Analysis

To get a comprehensive and representative understanding of the student body, the study will aim for an equal representation of participants from each academic year, from first-year to third-year students. This balanced

approach is designed to mitigate the risk of overrepresentation from any year, which could inadvertently skew the study outcomes. Ensuring an equitable distribution of participants from each year is crucial for providing an unbiased insight into the experiences of undergraduate students at this university.

The gender distribution of the university's student population - approximately 70% male and 30% female - will also be considered in the study's sampling strategy. Efforts will be made to replicate this distribution in the study sample to avoid inadvertently influencing the findings. This approach is essential for ensuring that the results represent the entire student body and for maintaining the validity and generalizability of the study's findings. By reflecting the actual demographic composition of the university, the study aims to provide an accurate understanding of student satisfaction within this educational setting.

The questionnaire utilized in this study was designed to capture undergraduate student satisfaction at a small private university in Japan. Initially, the pre-pilot version of the questionnaire comprised 30 items derived from relevant theories and Japanese-specific literature (Appendix A). This comprehensive approach ensured that the questionnaire was grounded in theory while being sensitive to the cultural context of the study. The questionnaire items were distributed as follows: two demographic questions (gender and year of study) consisting of closed questions, 28 items focusing on six independent variables (IVs) with 24 items, and the dependent variable (DV) of satisfaction with four items.

The questionnaire structure employed a 5-point Likert scale, with responses to standard-worded items ranging from 1 (strongly agree) to 5 (strongly disagree). This scale was chosen for its effectiveness in capturing the intensity of students' perceptions and attitudes. The Likert scale's nuanced gradations from agreement to disagreement provide a detailed understanding of student satisfaction levels. To cater to the bilingual nature of the student body, the questionnaire was made available in both English and Japanese. This bilingual approach ensured inclusivity and accessibility for all participants.

The translation of the questionnaire into Japanese employed the back-translation method, a rigorous linguistic approach that enhances the accuracy of the translation. Staff from the Japanese Language College performed the translation. The rationale behind using this method lies in its ability to maintain the integrity and meaning of the original English items. Back-translation involves translating the questionnaire into Japanese and then independently translating it back into English to check for consistency and accuracy. This method is widely recognized for its effectiveness in cross-cultural research, ensuring that the translated version accurately reflects the original content (Brislin, 1970).

The questionnaire was distributed through two channels: physically in class and digitally via Google Docs. This dual-mode distribution was employed to maximize participation and cater to the diverse preferences of the student body. The questionnaire's piloting occurred over two weeks from June 5th to 18th, 2023, followed by the main study conducted over three weeks from September 18th to October 8th, 2023. The phased approach allowed for necessary adjustments post-piloting before the main data collection.

For data analysis, IBM's SPSS V26 software was utilized to conduct descriptive statistics, reliability and validity testing, and regression analysis. SPSS was chosen due to its robustness and wide acceptance in social sciences research for statistical analysis. AMOS V28 software also facilitated confirmatory factor analysis (CFA). CFA was instrumental in validating the factor structure of the questionnaire, ensuring the constructs measured were consistent with the theoretical framework. AMOS for CFA is supported by its capabilities in handling complex models and providing detailed output (Byrne, 2010).

#### *2.4 Ethical Considerations*

In implementing this study, stringent ethical considerations were paramount to safeguarding the rights and well-being of the participants. Before participating in the pilot and main studies, individuals were thoroughly informed about the study's purpose, the voluntary nature of their involvement, and their rights within the research process. This information was communicated through informed consent forms which participants were asked to review and acknowledge. The forms detailed participants' rights, including the option to withdraw from the study at any point without any consequences and the freedom to refrain from answering any questions they were not comfortable with. To uphold the anonymity of participants, careful measures were implemented to ensure that no personal identifying information was collected. This approach was consistent across both digital and physical questionnaires; in the case of digital questionnaires, specific care was taken to avoid collecting emails or IP addresses. The anonymity of participants is crucial in maintaining confidentiality and encouraging candid responses, as it reassures participants that their privacy is protected.

Upon completion of data compilation and independent verification, all digital and physical questionnaires were

discarded. This step was critical to ensuring that the data, once aggregated and analyzed, could not be traced back to individual participants. The destruction of the questionnaires was necessary to maintain the confidentiality and privacy of the participants' responses, in line with ethical research practices (Israel & Hay, 2006). These ethical protocols underscore the commitment of the study to uphold the highest standards of research ethics, ensuring the protection and respect of all participants involved.

### 3. Findings

#### 3.1 Feasibility Study

The feasibility of the study was initially tested through a pilot study to ensure the appropriate construction of variables and observed items. The pilot included a sample that reflected a cross-section of the student body within three academic classes, including 29 first-year, 23 second-year, and 24 third-year students. Out of the 76 students approached, the pilot achieved a participation rate of 81.6% (62 responses), thereby establishing a robust initial assessment of the instrument's effectiveness across academic levels. The gender distribution in the pilot sample was 69.4% male and 30.6% female, which nearly mirrors the university's student body composition. This close replication lends credence to the representativeness of the sample and suggests that findings from this pilot can be cautiously extended to the broader university population. Such demographic alignment is pivotal in minimizing sampling bias and enhancing the external validity of the research findings.

The 76 students that were invited to participate, aligned with Green's (1991) recommendation for regression analyses, which advises including 10-15 participants for each independent variable. With six independent variables under scrutiny in this study, the ideal pilot sample size ranges from 60 to 90 participants. The actual pilot participation of 62 students sits well within this suggested bracket, affirming the sample's adequacy. Additionally, pilot studies are often scaled as a proportion of the full study size, typically between 10% and 20%, according to Van Teijlingen and Hundley (2002). Given the full study's target size of 307, as determined by the Krejcie and Morgan sample size formula for the university's student population of 1,520, the pilot's sample size comprises a meaningful percentage of the full study. This scale is critical in verifying that the research process and instruments are robust and that any modifications implemented are suited to the broader study context.

In the analysis of the pilot study, the Cronbach's alpha results for each construct were calculated to evaluate internal consistency (Table 1). These results are crucial as they indicate the reliability of the questionnaire items in measuring the underlying constructs. The Alpha values ranged from 0.713 to 0.929, demonstrating satisfactory to high internal consistency across the board. Notably, the construct of showed an alpha of 0.929, reflecting a particularly strong internal consistency. These results, which exceeded the commonly accepted benchmark of 0.7 for Cronbach's alpha (Nunnally & Bernstein, 1994), suggest that the questionnaire items are reliable indicators of the constructs they are intended to measure and that the scale is likely to produce consistent results across different samples.

Table 1. Pilot Study Analysis

Construct	$\alpha$	Item-Total Correlation	Loading Range	CR	AVE	Skewness	Kurtosis
Social Environment	0.78	<b>0.698-0.833</b>	0.714-0.813	0.859	0.604	0.305	-0.714
Instructors	0.724	<b>0.662-0.818</b>	0.662-0.819	0.827	0.547	0.754	1.938
Facilities	0.849	<b>0.765-0.877</b>	0.764-0.889	0.9	0.692	-0.003	-0.347
Support	0.757	<b>0.715-0.794</b>	0.698-0.814	0.846	0.58	-0.063	-0.379
Grit	0.734	<b>0.723-0.808</b>	0.682-0.856	0.843	0.574	0.244	0.465
Student Engagement	0.713	<b>0.624-0.815</b>	0.692-0.866	0.85	0.587	0.51	-0.635
Satisfaction	0.929	<b>0.773-0.899</b>	0.893-0.924	0.95	0.828	0.774	1.914

Note: Table abbreviations:  $\alpha$  = Cronbach's alpha, CR = composite reliability, AVE = average variance extracted.

Item-total correlation, a measure of the degree to which each questionnaire item correlates with the total score of all other items within the same construct, was tested to ensure internal consistency within the constructs. This measure is crucial for identifying items that do not contribute well to a construct and may need to be revised or removed. Clark and Watson (1995) posit that item-total correlation values should ideally be above 0.3, a threshold that all the items in this pilot study comfortably exceed (Table 1), indicating good internal consistency.

The benchmarks for composite reliability (CR) and average variance extracted (AVE) are critical in establishing the reliability and validity of the constructs. CR values above 0.7 are considered acceptable (Hair et al., 2010),

indicating good internal consistency, while AVE values above 0.5 suggest that a majority of the variance in the items is due to the underlying construct, indicating sufficient convergent validity (Fornell & Larcker, 1981). The pilot study's CR and AVE values met these benchmarks, affirming the reliability and validity of the construct measure.

Normality testing is crucial in regression analysis as it affects the estimation of coefficients, standard errors, and the generalization of results. Assessing normality in pilot studies is equally important because it can influence the interpretation of the data and the robustness of the study design before scaling up to the full study. Skewness and kurtosis are two statistical measures used to assess the normality of the data. Skewness refers to the asymmetry of the distribution, while kurtosis indicates the peakedness or flatness. Kline (2011) posits that acceptable ranges for assessing normality in data distributions are skewness values within  $\pm 3$  and kurtosis values within  $\pm 10$ . Values outside of these ranges may suggest a significant deviation from normality. The pilot study's values for skewness and kurtosis fell within these thresholds, suggesting that the data distribution did not deviate significantly from normality (Table 1).

The pilot study's findings on statistical feasibility, reflecting robust reliability and validity measures, support the continuation of the larger-scale study. The adherence to suggested sample sizes for regression, the alignment with the percentage of the full study's sample size, and the satisfactory internal consistency and validity of the constructs contribute to the methodological rigor of the research design. The normality of the data confirmed through the pilot study indicates that the assumptions required for regression analysis are met, providing confidence in proceeding with the main study.

### 3.2 Data Analysis: Main Study

#### 3.2.1 Demographic Profile

The demographic profile of the main study participants closely reflects the composition of the university's student body, with a gender distribution of 65.6% male and 34.4% female (Table 2). This distribution aligns with the institutional demographics and corresponds with the gender representation observed in the pilot study. The intention to mirror the university population enhances the study's external validity, allowing for a more accurate extrapolation of the findings to the broader student population. In terms of academic standing, the study successfully achieved a representation that closely approximates a balance across the three academic years. First-year students constituted 33.3% of the participants, second-year students 36.0%, and third-year students 30.7% (Table 2). While the representation of second-year students was marginally higher, the overall distribution did not deviate significantly from an equitable representation. This balance across academic years was a deliberate methodological effort to ensure that the findings could be generalized across the student experience rather than skewed towards any particular stage in the academic journey.

Table 2. Demographic Profile

Profile	Frequency	Percent
<b>Gender</b>		
Male	248	65.6
Female	130	34.4
<b>Academic Year</b>		
First Year	126	33.3
Second Year	136	36.0
Third Year	116	30.7

#### 3.2.2 Response Rate

In the execution of the study, 648 questionnaires were distributed, employing physical and digital distribution methods. The return of 386 completed questionnaires translates to a response rate of 59.6%, which notably surpasses the recommended threshold of 50% set forth by Babbie (1990), thereby mitigating the risk of non-response bias that could compromise the study's findings. This response rate indicates a high level of engagement from the participants and provides a substantial data set for analysis.

The integrity of the data was diligently verified through a review process to ensure its completeness. Of the returned questionnaires, eight were discarded due to being incomplete; interestingly, these were exclusively from the physical distribution, as the digital format of the questionnaire was designed to preclude progression without responses to all questions. Consequently, 378 responses were deemed suitable for inclusion in the final analysis, representing an inclusion rate of 97.9%. This rate reflects the effectiveness of the data collection process, with

the majority of collected data being complete and usable. The distribution between the paper-based and digital questionnaires, with 257 and 121 responses, respectively, underscores the value of utilizing a mixed-mode approach to maximize response rates and data completeness.

### 3.2.3 Normality Assessment

The normality of the data in this study was evaluated through a multifaceted approach, initially grounded in the principles of the Central Limit Theorem. As illustrated by Altman and Bland (1995), this theorem posits that with large sample sizes, typically over 100 observations, the distribution of sample means will approximate a normal distribution. This foundational understanding is critical for the study, considering its sample size exceeds this threshold, which provides an initial indication of potential normality in the data distribution. However, further empirical assessments were conducted using skewness and kurtosis measures to substantiate this, with the results presented in Table 3.

Table 3. Normality Assessment

Construct	Mean	SD	Skewness	Kurtosis	CV (%)
Social Environment	1.86	0.59	0.420	0.159	31.72
Instructors	1.84	0.52	0.237	-0.220	28.26
Facilities	2.60	0.79	0.324	0.008	30.38
Support	2.11	0.60	0.469	0.609	28.44
Grit	1.85	0.54	0.700	1.088	29.19
Student Engagement	1.87	0.64	0.331	-0.324	34.22
Satisfaction	2.11	0.64	0.253	0.712	30.33

*Note.* Table abbreviations: SD = standard deviation. CV = coefficient of variation. CV is presented as a percentage.

The skewness and kurtosis values for the data fell within the acceptable ranges, as Kline (2011) recommended, indicating that the distributions did not significantly deviate from a normal distribution. This aspect of data analysis is crucial, as it underpins the validity of subsequent statistical analyses and the reliability of their results. Complementing this analysis, each variable's coefficient of variation (CV) was calculated, serving as an additional check for normality. Jeyaseelan (2007) states that a CV value of less than 50% indicates a normal distribution, especially in sample sizes larger than 50. The formula to calculate the coefficient of variation is:

$$CV = SD / \text{Mean} \times 100$$

The study's findings, where all variables demonstrated CV values below 50%, further support the normality of the data. This convergence of empirical evidence from skewness, kurtosis, and CV measures provides a robust indication of normality, essential for the integrity and accuracy of the study's statistical interpretations. As a result, these combined analyses support the Central Limit Theorem-based initial assumption of normality and guarantee that the distribution of the data complies with the specifications needed for the used statistical techniques.

### 3.2.4 Reliability and Validity Testing

In the study, reliability and validity were thoroughly examined to ensure the robustness of the constructs measured. The Cronbach Alpha values for each construct, as detailed in Table 4, ranged from 0.707 to 0.885. These values exceed the benchmark of 0.7, as Nunnally and Bernstein (1994) advocated, indicating a high internal consistency level within the constructs. The item-total correlation analysis, an essential tool for assessing the coherence of items within each scale, revealed that all scales had correlations within the acceptable range, greater than 0.3 but lower than 0.9. This range, which was recommended by Clark and Watson (1995), prevents insufficiency and redundancy in the items and validates significant internal consistency.



Table 4. Reliability and Validity Testing

Construct	A	Item-Total Correlation	Loading Range	CR	AVE	MSV	ASV
Social Environment	0.885	0.788-0.825	0.804-0.819	0.884	0.656	0.217	0.142
Instructors	0.715	0.739-0.785	0.723-0.785	0.846	0.577	0.299	0.19
Facilities	0.81	0.751-0.850	0.749-0.846	0.875	0.637	0.258	0.122
Support	0.707	0.543-0.8	0.605-0.808	0.837	0.564	0.229	0.163
Grit	0.756	0.679-0.778	0.831-0.895	0.921	0.744	0.274	0.136
Student Engagement	0.791	0.749-0.833	0.701-0.848	0.866	0.614	0.006	0.002
Satisfaction	0.823	0.832-0.892	0.682-0.791	0.862	0.543	0.299	0.185

Note: Table abbreviations:  $\alpha$  = Cronbach's alpha, CR = composite reliability, AVE = average variance extracted, MSV = maximum shared variance, ASV = average shared variance

The study further assessed convergent validity through factor loadings, CR, and AVE, as shown in Table 4. All factor loadings surpassed the minimum threshold of 0.4, as Stevens (2009) argued, reinforcing each item's significance in its respective construct. Composite reliability values ranged from 0.837 to 0.921, all above the 0.7 threshold per Hair et al. (2010), ensuring reliability within the constructs. All constructs exceeded the benchmark of 0.5 in terms of AVE, which gives priority to the total variance attributable to a latent construct; this suggests adequate convergent validity (Hair et al., 2010).

Table 5. Fornell-Larcker Criterion

	SE	IN	FA	SU	Grit	ENG	SAT
SE	<b><i>0.81</i></b>						
IN	.448**	<b><i>0.76</i></b>					
FA	.310**	.380**	<b><i>0.798</i></b>				
SU	.413**	.481**	.443**	<b><i>0.751</i></b>			
Grit	.464**	.526**	.169**	.404**	<b><i>0.863</i></b>		
ENG	0.01	0.019	0.080	0.075	0.015	<b><i>0.784</i></b>	
SAT	.418**	.549**	.508**	.479**	.386**	0.039	<b><i>0.737</i></b>

Note: \*\* The correlation is significant at the 0.01 level (2-tailed). Figures in bold and italic represent the constructs AVE square root.

Discriminant validity, which is essential for proving that each construct is unique, was examined using the Fornell-Larcker criterion, ASV, and MSV. Table 4 demonstrates that each construct's MSV and ASV are less than their respective AVEs, supporting good discriminant validity, as Hair et al. (2010) outlined. This result implies that constructs share more variance with their indicators than other constructs. The Fornell-Larcker criterion further reinforced discriminant validity by comparing the square root of AVE of each construct with the correlations between the construct and other constructs. For each construct, the square root of its AVE was greater than its highest correlation with any other construct, as detailed in Table 5. The results suggest that each construct is more closely related to its indicators than other constructs, a fundamental aspect of discriminant validity, as explained by Fornell and Larcker (1981).

### 3.2.5 Multicollinearity Testing

In regression analysis, assessing multicollinearity is essential to ensuring the model's reliability. Multicollinearity occurs when independent variables in a regression model are highly correlated, potentially leading to difficulties distinguishing each variable's unique effects. This condition can inflate the variance of the coefficient estimates, rendering them unstable and unreliable. This study employed two fundamental diagnostic tools to evaluate multicollinearity: tolerance and the Variance Inflation Factor (VIF). Tolerance measures the extent to which other independent variables in the model uniquely determine an independent variable. A low tolerance value suggests higher multicollinearity. Generally, a tolerance value below 0.1 may indicate problematic multicollinearity, warranting further investigation (Menard, 2002). VIF, which is the reciprocal of tolerance, indicates the degree of increase in the variance of a regression coefficient due to multicollinearity. While some researchers, such as O'Brien (2007), suggest that a VIF value above 10 indicates significant multicollinearity, Hair et al. (2010) propose a more conservative threshold of 5.

Table 6 presents the tolerance and VIF statistics for the study. The tolerance values range from 0.585 to 0.990, and the corresponding VIF values range from 1.010 to 1.709. These values indicate that multicollinearity is not a

significant concern in the regression model. The tolerance values are well above the 0.1 threshold, and the highest VIF value observed (1.709) is below both the conservative threshold of 5 recommended by Hair et al. (2010). Therefore, the multicollinearity testing results suggest that the independent variables in the regression model maintain sufficient independence from each other. This implies that the regression coefficients can be reliably interpreted, contributing to the overall validity of the study's findings.

Table 6. Multicollinearity Test

Constructs	Tolerance	VIF
Social Environment	0.685	1.460
Instructors	0.585	1.709
Facilities	0.743	1.347
Support	0.637	1.570
Grit	0.633	1.580
Student Engagement	0.990	1.010

Note: Dependent Variable: Satisfaction

### 3.2.6 Regression Analysis

The purpose of regression analysis in this study is to explore the relationships between various independent variables, such as social environment, instructors, facilities, support, grit, and student engagement and the dependent variable, student satisfaction. This statistical method is instrumental in determining the strength and direction of these relationships, allowing for a nuanced understanding of how each factor contributes to overall satisfaction levels among students. The analysis is guided by established principles and methodologies in the social sciences, as scholars such as Cohen and colleagues (2003) delineated in their regression and correlation analysis work.

In examining the regression results, significant predictors of satisfaction were identified. Instructors, facilities, and support emerged as influential factors, each positively correlated with student satisfaction. This indicates that improvements in these areas are likely to enhance student satisfaction. Notably, while grit and student engagement were included in the model, their impact on satisfaction was not statistically significant, suggesting that their roles may be more nuanced or influenced by other mediating factors. The linear regression equation, excluding non-significant predictors for clarity, can be expressed as:

$$SAT = 0.148 + 0.116(SE) + 0.346(IN) + 0.238(FA) + 0.145(SU)$$

In interpreting the findings of this study, particularly the adjusted  $R^2$  values, it is crucial to understand the implications of these values in the research context. The adjusted  $R^2$  measures how much variance in the dependent variable (student satisfaction) is explained by the independent variables in the model after accounting for the number of predictors. In this study, an adjusted  $R^2$  value of 0.436 indicates that the selected independent variables explain approximately 43.6% of the variance in student satisfaction.

According to Cohen (1988), an adjusted  $R^2$  value greater than 0.26 is considered substantial. This suggests that the model has significant explanatory power. In practical terms, being substantial means that the model captures a meaningful and sizeable portion of the variability in the dependent variable. It implies that the factors included in the model are statistically significant and considerably impact the outcome variable.

This level of explanation is particularly noteworthy in social science research, where human behaviors and preferences are subject to a wide range of influences and can be difficult to predict with high precision. The fact that the model in this study accounts for over 43% of the variance in student satisfaction is significant, as it indicates a strong relationship between the identified factors and the overall satisfaction levels of students. The model effectively captures critical elements contributing to student satisfaction, making it a valuable tool for understanding and enhancing the educational experience.

### 3.2.7 Gender-Specific Regression Analysis

In exploring the dynamics of student satisfaction through the lens of gender, the study conducted separate regression analyses for male and female students. These analyses yield insights into the factors contributing to satisfaction levels across genders, offering a nuanced understanding of the student experience. For male students, the regression model demonstrated an adjusted  $R^2$  value of 0.449. This significant figure indicates that the model's predictors account for approximately 44.9% of the variance in satisfaction among male students. Based on the analysis, the significant predictors of male students' satisfaction were social environment, instructors,

facilities, and support. The linear regression equation, therefore, can be written as:

$$SAT_{Male} = 0.042 + 0.140(SE) + 0.341(IN) + 0.241(FA) + 0.194(SU)$$

In the case of female students, the significant predictors identified were instructors and facilities. The linear regression equation for female students is:

$$SAT_{Female} = 0.249 + 0.382(IN) + 1.99(FA)$$

These gender-specific equations reflect nuanced differences in the factors that contribute to satisfaction among male and female students. For male students, a broader range of factors, including social environment, quality of teaching, campus facilities, and support services, significantly influence their satisfaction. Conversely, for female students, the quality of instruction and facilities emerge as the primary influencers. This distinction underscores the need for tailored approaches in educational settings, considering gender-specific preferences and experiences, to enhance overall student satisfaction effectively.

#### 4.2.8 Regression Analysis by Academic Year

The regression analysis for first-year students resulted in an adjusted  $R^2$  value of 0.340, indicating that the model explains approximately 34% of the variation in student satisfaction. The significant predictors of satisfaction in this group were social environment and facilities. The linear regression equation for first-year students can be stated as follows:

$$SAT_{FirstYear} = 0.589 + 0.239(SE) + 0.244(FA)$$

This model suggests that for first-year students, the quality of social interactions and the university's social environment are critical factors in their overall satisfaction. The relatively lower adjusted  $R^2$  value might reflect the exploratory and adaptive phase typical of first-year students, where multiple unmeasured factors could influence their satisfaction levels.

In the second year, the model's adjusted  $R^2$  value increased to 0.553, explaining 55.3% of the variance in student satisfaction. This higher  $R^2$  value implies a stronger relationship between the predictors and satisfaction among second-year students than first-year students. The significant predictors in this model were instructors and facilities. This finding emphasizes the importance of instructional quality as students progress in their academic journey. The linear regression equation for second-year students is:

$$SAT_{SecondYear} = -0.331 + 0.676(IN) + 0.248(FA)$$

The equation indicates that instructor quality and facilities continue to play a crucial role in student satisfaction, with the impact of instructors becoming more pronounced in the second year.

The analysis for third-year students yielded an adjusted  $R^2$  of 0.439, meaning that the model explains about 43.9% of the variance in satisfaction. Key predictors for this group included instructors, facilities, and support. The regression equation for third-year students is:

$$SAT_{ThirdYear} = 0.141 + 0.261(IN) + 0.197(FA) + 0.196(SU)$$

For students in their final year, the model highlights a more comprehensive range of factors impacting satisfaction, including instructional quality, facilities, and support services. This broader spectrum of significant factors could reflect the evolving needs and expectations of students as they approach the culmination of their academic programs. The findings suggest that third-year students value a supportive and well-resourced environment, along with quality instruction, as they prepare for their transition out of university.

## 4. Discussion

Delving into the discussion of findings necessitates revisiting the theoretical underpinnings guiding this investigation. The analysis, grounded in Social Capital Theory and Expectancy-Value Theory, illuminates intricate ways in which social networks, instructor-student interactions, and the alignment of educational experiences with student expectations and values shape satisfaction. Drawing upon Putnam (2000), Social Capital Theory emphasizes the importance of robust social connections and support systems within the university setting, highlighting how these elements facilitate access to resources and information critical for student satisfaction. Concurrently, Eccles et al. (1983) and Wigfield and Eccles (2000) underpin the application of Expectancy-Value Theory, underscoring the role of students' expectations and the perceived value of their educational experiences in fostering engagement and persistence, further influencing their satisfaction levels. These theoretical perspectives about student-instructor interactions, further explored by Tinto (1997), provide a comprehensive framework for understanding the dynamics at play in enhancing student satisfaction within the context of a small private Japanese university.

In the study's exploration of the role of instructors in influencing student satisfaction, parallels are drawn with findings in broader Japanese higher education research, such as those by Mallika Appuhamilage and Torii (2019) and Tokita et al. (2023). However, the heightened significance of facilities, particularly within a small private university, suggests aspects overlooked in larger institutions. This distinction could be attributed to the smaller scale of private universities, where the quality and accessibility of facilities might have a more direct impact on students' daily experiences (Scott, 2023). This underscores the importance of considering the institutional context when evaluating factors affecting student satisfaction and suggests a need for these smaller institutions to prioritize investments in their physical infrastructure.

The study's findings on the importance of support for student satisfaction align with research by Rakhshandehroo and Ivanova (2020). This research highlights the need for comprehensive support systems in Japanese universities, particularly for international students. The current study extends this understanding to the broader student population, showing that robust support systems, encompassing academic, emotional, and administrative aspects, are crucial for enhancing student satisfaction. This is especially pertinent in smaller private universities, where personalized support mechanisms can significantly influence students' academic success and well-being.

The influence of the social environment on student satisfaction, as supported by Tamaoka et al. (2003), is further accentuated in this study. The quantification of this factor's impact suggests a strong correlation between students' social interactions and their overall satisfaction. In smaller private universities, where community and interpersonal relationships might be more closely knit, the social environment could be more integral (in-to) shaping students' university experiences.

Gender-specific findings in this study show distinct determinants of satisfaction for male and female students, resonating with Sekiguchi and Kato's (2003) research. The study's detailed analysis highlights the complexity of gender influences on student satisfaction and suggests the need for gender-specific strategies in educational settings. For instance, the emphasis on instructors and facilities for female students implies that these areas are particularly influential in shaping their satisfaction.

The study's insights into the evolving needs of students across different academic years highlight the dynamic nature of student satisfaction. For first-year students, the social environment and facilities significantly impact satisfaction, emphasizing the importance of integration and a conducive physical environment. As students advance, the focus shifts to the quality of instructors, reflecting a change in priorities toward academic engagement. This adaptive approach is vital for meeting students' diverse and changing needs and ensuring their educational experience remains relevant and satisfying throughout their university tenure. This understanding is fundamental for smaller private institutions where personalized attention and tailored educational experiences can be a distinguishing feature.

## **5. Recommendations**

As the study on student satisfaction at a small private Japanese university concludes, it becomes essential to translate the insights gained into actionable strategies. The recommendations provided in the following section are designed to address the identified factors that significantly influence student satisfaction. These strategies are tailored to enhance the educational experience at various levels - institutional, administrative, and instructional - and to mitigate challenges such as declining enrollment and student attrition. The focus is on creating a more fulfilling and supportive environment for students, thereby strengthening the university's overall reputation and appeal.

### *5.1 Institutional-Level Recommendations*

The findings underscore the importance of facilities and the social environment in influencing student satisfaction. Universities should prioritize upgrading their physical infrastructure, such as modern infrastructure classrooms, libraries, and recreational areas, to create a more conducive learning environment. Simultaneously, fostering a vibrant social atmosphere through student clubs, events, and community-building activities can significantly enhance the overall university experience. Additionally, universities should enhance their student support services. This could include expanding mental health services, academic tutoring programs, and career counseling. These services should be readily accessible and well-publicized to ensure students are aware of and can efficiently utilize them. Developing mentorship programs where senior students or alums guide newer students can also bolster the sense of community and support.

### *5.2 Administration Level Recommendations*

Given the significant impact of instructors on student satisfaction, administrative efforts should focus on faculty development. This includes ongoing training in pedagogical techniques, integrating technology into teaching,

and methods to engage students actively (Scott et al., 2023). Encouraging faculty to participate in workshops and conferences can keep them abreast of the latest educational trends and methodologies. Administrations should also establish regular and systematic feedback to ensure continuous improvement in teaching and student services, universities should establish mechanisms for regular feedback from students by including surveys, focus groups, and suggestion boxes. Feedback should be actively used to inform changes and enhancements in teaching methods, course content, and student services.

### *5.3 Instructional Level Recommendations*

Given the findings that engagement and grit did not emerge as significant predictors of student satisfaction in the Japanese undergraduate context, it remains essential for educators to adopt a holistic and diverse approach to teaching. Drawing from Huang and Goto's (2018) exploration of the challenges in Japanese higher education, this study recommends that instructors should focus on creating an inclusive and dynamic learning environment. This involves integrating varied instructional strategies, such as project-based learning and interactive technology, to cater to the diverse academic backgrounds and learning styles of students. While the direct impact of these methods on engagement and grit may not be statistically significant, they are crucial for fostering a comprehensive educational experience. Such an approach is aligned with the broader goal of enhancing overall student development and satisfaction, addressing the unique challenges of undergraduate education in Japan.

### *5.4 Gender and Year-Specific Recommendations*

The differences in factors affecting male and female student satisfaction call for gender-specific initiatives. For example, programs targeting leadership and career development might be more influential for female students, while broader engagement initiatives might resonate more with male students. The varying needs of students across different academic years suggest the need for year-specific engagement strategies. For example, first-year students might benefit more from orientation programs and social integration initiatives, while second and third-year students might appreciate more career-oriented services and academic support.

### *5.5 Improving Attrition and Institutional Reputation*

Enhancing student satisfaction is vital not only for the immediate well-being and academic success of students but also for reducing attrition rates and improving the overall reputation of the institution. Recommendations for this include:

1. **Strategic Marketing and Reputation Building:** By improving student satisfaction, universities can enhance their reputation, attracting more prospective students. Positive student experiences often lead to word-of-mouth recommendations and can significantly boost the institution's profile.
2. **Alumni Networks and Engagement:** Satisfied graduates are more likely to contribute positively to the university's alumni network, aiding in recruitment efforts and potentially contributing to the university's resources through donations or partnerships.
3. **Showcasing Success Stories:** Highlighting student achievements and satisfaction in university publications and social media can be effective marketing tools. Showcasing the positive experiences of current students can attract prospective students and enhance the institution's appeal.
4. **Enhancing Student-Centric Services:** By focusing on services that directly improve student life and learning experiences, universities can create a more attractive environment for potential students. This includes robust career services, mental health support, and extracurricular opportunities.

These recommendations aim to create a positive cycle of satisfaction, retention, reputation enhancement, and attraction of new students, contributing to the overall health and sustainability of small private universities in Japan.

## **6. Limitations**

The limitations of this study warrant careful consideration for their implications (on-for) the findings and the direction of future research. Focusing exclusively on a single small private Japanese university constrains the broader applicability of the results. Expanding future research to include a diverse array of institutions across various regions or even countries would enhance the generalizability of the findings and provide a richer understanding of student satisfaction in different educational contexts.

Regarding methodology, the reliance on quantitative methods, while offering valuable statistical insights, might not fully encapsulate the multifaceted nature of student satisfaction. The incorporation of qualitative methods, such as detailed interviews or focus groups, in future research would be beneficial. These approaches could provide a deeper, more nuanced understanding of students' experiences and perceptions, capturing aspects of satisfaction that quantitative methods may overlook.

The theoretical framework guiding this study, while robust, may not encompass all variables relevant to understanding student satisfaction. Future research should consider exploring additional theories and variables that could impact student satisfaction. These might include the role of digital learning tools, aspects of student well-being, and the influence of external socio-economic factors. Such an expanded theoretical and empirical scope would likely yield a more comprehensive understanding of the factors that influence student satisfaction.

Additionally, the demographic scope of the study, particularly the examination of gender and academic year, presents an opportunity for further expansion. Including a wider range of demographic variables such as socio-economic status, international versus domestic student status, and part-time versus full-time enrollment status in future research would allow for a more inclusive and detailed exploration of the diverse student experiences within the university setting. This approach would provide a more complete picture of the factors influencing student satisfaction across different student groups

## **7. Conclusion**

The conclusion of this study encapsulates the core findings and their implications for small private Japanese universities, effectively addressing the research questions and objectives set forth at the outset. The investigation into student satisfaction, guided by a robust quantitative analysis, revealed that factors such as Instructors, Facilities, and Support significantly influence student satisfaction, as indicated by an adjusted  $R^2$  value of 0.436, which is substantial according to Cohen (1988). This underscores the critical role these elements play in shaping students' educational experiences.

The study also illuminated nuances in satisfaction determinants across genders and academic years. For male students, a broader range of factors, including the social environment, emerged as significant, with an Adjusted  $R^2$  value of 0.449, while for female students, Instructors and Facilities were primary influencers, as reflected in their model's Adjusted  $R^2$  of 0.412. These findings highlight the necessity of gender-specific approaches (in- to) enhancing student satisfaction. Moreover, the variation in significant predictors across academic years, with the increasing importance of instructional quality in later years, signals the need for year-specific strategies in student engagement and support.

Thus, this study effectively addresses its research questions, providing empirical evidence that supports its claims and is consistent with the theoretical frameworks applied. While the limitations, such as the study's focus on a single institution and the use of quantitative methods, suggest avenues for future research, the current findings offer valuable insights for small private Japanese universities. These insights can inform targeted strategies at various institutional levels to improve student satisfaction, thereby potentially enhancing student retention, institutional reputation, and resilience in the face of demographic and market challenges.

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## **Author Contributions**

Mr. Gregory Stein and Dr. Yvonne Wei were responsible for the study design. Mr. Stein also led the data collection and participated in revising the manuscript. Dr. Wei conducted the statistical analysis and was primarily responsible for drafting the manuscript. Both authors read and approved the final manuscript. Both authors contributed equally to the study.

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No additional data are available.

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## Appendix A

### Questionnaire Items

Demographic	Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female
	Current Year of Enrollment: <input type="checkbox"/> First-Year <input type="checkbox"/> Second-Year <input type="checkbox"/> Third-Year
Social Integration	I feel connected to other students at this university.
	I have a lot in common with other students here.
	The relationships I have built with other students have helped me grow personally (attitudes and values).
	The relationships I have formed with other students have positively influenced my academic growth and interest.
Instructors	The instructors are enthusiastic about teaching.
	The instructors utilize a variety of tools to teach.
	The instructors are experts in their fields.
	The instructors have a sincere interest in solving students' problems.
Facilities	The university has invested in the necessary resources (books, equipment, study space) to ensure students will succeed in their studies.
	The university has up-to-date equipment and facilities.
	The library has access to all the resources I need for my studies.
	The university regularly provides special seminars or expert lectures.
Support	I receive advice regarding my academic career (scheduling, academic performance, and study plans).
	The institution provides sufficient assistance with financial issues, questions, and support.
	Scheduling appointments with advisors is easy.
	The institution regularly communicates with students regarding upcoming events, school rules, or policy changes.
Academic Grit	The courses challenge me to expand my thoughts and opinions on topics.
	There is a connection between what I am learning and what I will need in my career.
	I feel intellectually challenged in class.
	The faculty is concerned about my academic growth.
Satisfaction	Overall, I am satisfied with the quality of instruction I receive in my courses
	Overall, I am satisfied with the support my instructors provide in class.
	Overall, I am satisfied with the quality of the academic resources available by the university.
	Overall, I am satisfied with the quality of academic advising.