

Adaptation and validation the integration scale for Indonesian university students: academic and social

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ABSTRACT

Student integration is a student's ability to integrate into the social and academic systems of the university. Integration of students has been shown to affect how well they do on campus, which helps them finish higher education. The integration scale (IS) measures integration ability that meets the principle of simplicity. The integration scale is formed of 16 items divided into five aspects and two factors. This study aimed to adapt and validate IS instruments for the Indonesian university student population. The research methods complied with the six-step procedures the International Test Commission set out. A total of 309 participants were undergraduate students. They were between 17 and 23 years old (mean=19.42, SD=1.11 years), with 247 females (79.94%) and 62 males (20.06%). The results of the confirmatory factor analysis revealed that a total of 16 items were valid and reliable. Three models that have acceptable fits were confirmed. The results demonstrate that the Indonesian integration scale measures undergraduate student integration with comparable precision to the original scale. This scale can identify students who require academic and social integration assistance and evaluate the institution's role in academic development.

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1. INTRODUCTION

Student integration refers to students' compatibility with the university environment due to interaction within the academic and social systems [1]. Previously, student integration was known as institutional integration [2], but recent research has used the terms student integration [3], [4]. Researchers typically investigated the importance of peer support [5] or educational institution involvement [6] as determinants of student success in completing higher education separately. Both of these factors can have an impact on higher education. The construct of student integration is already comprehensive because it includes social support in social integration and educational institution involvement in academic integration. Student integration emphasizes student involvement in the learning process in the university setting and student interaction with peers and faculty [7].

Interactionist theory contributed significantly to the social and academic integration concept [8]. Integration of university students results from interactions between individuals and their environment [9]. Academic integration is when students adapt to and identify with the academic system through a process of mutual evaluation between themselves and the educational systems of the university [10]. Social integration is forming friendships and adapting to the university's way of life, including student interaction with other students, faculty, and staff [11]. Social and academic integration can interrelate but also be backward, i.e.,

discussion activities with college friends can improve academic outcomes, or regularly attending lectures can improve relationships with friends; however, students may be academically well integrated but socially less integrated [12].

Students encounter various situations and conditions that continuously change from their first year of university to graduation. To pursue higher education, they move to a different city with new social values and environmental conditions [13]. When students have to move to another city, island, or even a foreign country, they encounter significant challenging obstacles [14], [15]. In addition, college students came from high schools of varying educational quality, including those with lesser standards [16]. They could be left behind because the university established a teaching-learning system with a student-directed approach, emphasizing independence in learning and assignment completion and primarily using projects or case-based evaluations [17]. Technology development has also resulted in changes to teaching methods, including blended learning and online learning [18], [19].

Further, since the COVID-19 outbreak, educational challenges have increased, leading to the adoption of distance learning. Studies indicated that distance-learning students have a moderate level of readiness engagement, are less satisfied with this learning method, prefer classroom instruction, and have issues interacting with lecturers and peers [20]. These changes, challenges, and obstacles can affect the success of higher education completion. Students have to adapt to the academic and social system on campus. Students who lack integration capacity have low GPA scores and even drop out [1].

Integration capacity is crucial for university students. Social integration positively affects academic resilience [11]. Adapting to the campus environment enables students to conclude their education successfully [21]. Students with a high integration capacity can better conform to the values of the social environment and the academic requirements in order to graduate. Based on Yu and Wright's qualitative research, students need to integrate and adapt to new learning strategies that are appropriate for the university, a variety of assessment techniques, a new lifestyle in the community, interactions with classmates, and building relationships with supervisors to avoid stress, anxiety, loneliness, homesickness, isolation, and feel satisfied with the academic process [22]. However, these qualitative studies could only represent a limited portion of the population. Therefore, they intended to conduct research with more participants. Quantitative methods are utilized for empirically significant research involving many participants [23].

Researchers already made instruments to measure student integration. Pascarella and Terenzini [24] developed the institutional integration scale (IIS). They suggested two factors in institutional integration: academic and social. Academic factors included faculty concern for student development and teaching, academic and intellectual development, and institutional and goal commitment. Social factors included peer group interactions and interactions with faculty. French and Oakes [2] conducted validation studies on the IIS, resulting the institutional integration scale revised (IIS-R). Changes in IIS-R are institutional integration factors that have been transformed into student and faculty factors, each factor including academic and social factors. The student factors consist of academic and intellectual development, peer group interactions, and institutional and goal commitment. The faculty factor consists of faculty concern for student development and teaching, and faculty interaction. Both instruments share the same aspects, but categorized differently. The fundamental model of interactionist theory does not include institutional and goal commitment in student integration. The IIS-R differed from the interactionist model theory in its structure [2].

The integration scale (IS) developed by Dahm *et al.* [12] is also based on Tinto interactionist theory and has fewer items, thus complying with the principle of parsimony. This scale was a modification of the Academic Commitment Scale, the Fulfillment of Achievement Expectations Scale, and the Social Integration Scale. Due to cultural differences between higher education institutions in the United States and the country where these instruments were developed, the elements of the interaction of students with faculty members off-campus were retained. The instrument's fundamental premise emphasizes the importance of the interaction between individuals and the campus community, both intellectually and socially. The interaction can encourage student-university relationships [25]. Durkheim's suicide hypothesis inspired this idea [12]. According to the suicide theory, the individual terminates their own life due to a lack of integration into the moral system and minimum relationship with others. In education, that concept is known as academic and social integration, characterized by adapting the campus community's goals and values, interactions with peers, and educational institutions [1]. Academic and social integration can result in student commitment to institutional commitment [25].

Integration can be a form of general integration comprised of two components, i.e., social and academic integration [12]. There are two factors and five aspects identified. The academic integration factor includes affective involvement, achievement orientation, and perceived academic performance. Interactions with faculty and interactions with peers are incorporated into social integration factors. The academic integration of students can be measured by their academic performance (structural components) and intellectual development (normative components). There are two aspects to the normative component for

intellectual development in academic integration: affective involvement and achievement orientation. Social integration refers to the extent to which students feel they belong in their social environment and are at ease and satisfied with campus social life, including their relationships with faculty and peers.

Every university student has different challenges, such as experiencing financial problems, family problems, problems with peers, problems with adjustment to a new environment, and others. Students who fail to complete their higher education have trouble finding employment, inadequate income, a reliance on government assistance, a tendency to work illegally, and other social problems [26]. However, some students persist in continuing their studies and can even achieve despite experiencing obstacles. These students are said to have high academic resilience [27], [28]. Academic resilience is affected by students' efforts, educational institutions' facilitation, and positive relationships with teachers [29]–[35]. Many Indonesian students also enroll as international university students in other nations, making it crucial to have the student integration ability to complete their education effectively [36], [37]. Thus, students need good integration capacity and the ability to adapt to higher education's academic and social system. It has been demonstrated that students with adequate student integration can persist and perform academically satisfactorily in higher education [1], [25]. However, institutional or student integration research in Indonesia is still relatively rare. The inability to conduct large-scale research on student integration in Indonesia is due to the lack of a valid and reliable instrument for measuring student integration for Indonesian university students. To better understand student integration in Indonesia, it is necessary to adopt appropriate instruments for measuring student integration, such as the IS, which adheres to the principle of parsimony [12]. This study aimed to adapt the integration scale to the Indonesian language and culture and establish its validity.

2. RESEARCH METHOD

2.1. Participants

The population was undergraduate students who studied at a state university in Malang, Indonesia. The study has obtained ethical approval from the Research Ethics Committee, with certificate number 179/EA/KEPK/2022. Since data collection was conducted during the COVID-19 pandemic, a non-probability convenience sampling technique was used to collect data and to reach undergraduate students from various disciplines and years of study. This diversity is necessary for these adaptation instruments to apply to undergraduate students broadly. Likert-scale questionnaires were organized into online forms (using Microsoft Forms) and distributed through WhatsApp groups or in the classroom (limited). There were 360 students participated, but 44 did not meet the criteria, and there were seven outliers data. The final sample size was 309; they were between 17 and 23 years old (mean=19.42, SD=1.11 years). Table 1 shows the demographics of the research participants.

Table 1. Demographics of participants

Category	Frequency
Gender	Female=247 (79.94%); Male=62 (20.06%)
Degrees	Undergraduate student=300 (97.09%); Bachelor of applied science student=9 (2.91%)
Year of study	1=75 (24.27%); 2=109 (35.28%); 3=110 (35.60%); 4=13 (4.21%); Others=2 (0.65%)
Study program	Social humanities=268 (86.73%); Technology science=41 (13.27%)

2.2. Instruments

Student integration was measured using instruments developed by Dahm *et al.* [12]. The IS has two factors: social and academic integration. Table 2 shows a more detailed distribution of IS.

Table 2. Blueprint of the integration scale [12]

Factors	Sub scale	Favorable	Unfavorable	Total
Academic integration	Affective involvement	1, 2	3	3
	Achievement orientation	4, 6	5	3
	Perceived academic performance	7, 8, 9	-	3
Social integration	Interactions with faculty	10, 11, 12, 13	-	4
	Interactions with fellow students	14, 15, 16	-	3
Total				16

The instructions for filled the IS: “We would now like to ask about your experiences in your degree program and at your university, for example, your relationships with instructors and your fellow students and how you are coping with university study. How much do the following statements apply to you and your studies?”. Translation in Indonesian language for the assignment were as: “*Sekarang kami ingin menanyakan tentang*

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pengalaman Anda di program studi dan di kampus, misalnya mengenai hubungan Anda dengan para dosen dan sesama mahasiswa, serta bagaimana Anda menghadapi sistem belajar di universitas. Seberapa tepat pernyataan berikut sesuai untuk Anda dan perkuliahan Anda? Bacalah setiap pernyataan dengan sebaik-baiknya, dan pilihlah respon yang sesuai dengan kondisi Anda berikut ini.” Each item on the academic integration factor has five answer options, ranging from 1 (doesn’t apply at all) to 5 (completely applies), whereas on the social integration factor has four answer options (4=completely applies). As with the original instruments developed by Dahm *et al.* [12], the IS version of adaptation distinguished the number of categories of response choice between academic integration and social integration. According to the experts, the determination of whether there are midpoints (5 points) or no midpoints (4 points) is tailored to several circumstances, including whether the respondents have a tendency to misuse a midpoint, whether respondents are familiar with the survey topic, and whether there are social desirability pressures. Items on academic and social integration differ as they measure different dimensions, thus requiring different response choices. In the scoring procedure, the negative item must be assigned the opposite score. The method of scoring involved calculating a total score for all items about general integration and a score for each factor about academic integration and social integration. The higher the score, the greater the level of integration between students and the system of higher education.

2.3. Procedure and data analysis

The translation and adaptation process of the IS instrument was carried out according to the standard guidelines of the international test commission [38]. Figure 1 shows the steps taken to adapt and validate IS. Before adopting the IS, a literature review was done to evaluate whether the instrument suited the intended target group.



Figure 1. The integration scale adaptation steps

- Stage 1 (The pre-condition): the author initiated a correspondence with the developer through the email address. This correspondence is to obtain permission to make adaptations, use them in research, and obtain manual or blueprint measuring instruments. The response to the application was given and contains permission to make adaptations and use them in research.
- Stage 2 (Test development): this phase starts with selecting a translator. Translators and experts were native Indonesians with good English language skills, a background education majoring in English and psychology, relevant professions (professional translators, English teachers, lecturers, structural officials in university institutions), and some experts with postgraduate experience abroad. The next activity was a translation, in which two people translated the original English-language instruments into Indonesia, and one person reconciled the translation results (forward translation), followed by two people who re-translated the Indonesian version into English, and one person reconciled the results of the translation (backward translation). Three experts in linguistic judgment assessed the results of the backward translation to ensure that each item of the Indonesian version has an equivalent meaning to the original. The results of evidence based on test content were mean score comparability of language (2.35) and similarity of interpretability (1.78), meaning the sentence of the Indonesian version was comparable to the original instrument because the smaller the score, the more comparable [39]. Six psychology experts evaluated the results of forward translation to prove that the IS adaptation instrument has appropriate content for Indonesian university students. Based on the calculation of the content validity index [40], the IS adaptation is agreed upon by the expert with an index between 0.99 and 1. These results showed that the Indonesian version of the IS has relevant, important, and clear content for Indonesian university students. The following activity was a pilot study, which involved distributing adapted IS instruments and conducting interviews with ten target population members. The first pilot study showed that there were a few sentences that the participants did not understand. After experts revised the sentence, the trial was repeated with five participants, and the target population could understand all items.
- Stage 3 (Confirmation and empirical analysis): the validity and reliability of the instrument were empirically demonstrated by confirmatory factor analysis (CFA). This analysis was considered most appropriate because it performs calculations by eliminating item measurement errors that reflect the latent construct [41]. Results were assessed based on model fit indices, construct validity (convergent validity, discriminant validity), construct reliability, and internal consistency.

- Stage 4 (The administration): valid work guidelines and items were organized according to the target population's culture.
- Stage 5 (Score scales and interpretation): document ways to score and interpret results tailored to the target population's culture.
- Stage 6 (Documentation document): i) technical changes and the evidence of empirical analysis, which was carefully documented; and ii) provided written documentation so that it can be used by other parties to perform tests on the target population.

3. RESULTS AND DISCUSSION

This section provides the empirical analysis findings to demonstrate the adapted instrument's validity and reliability using CFA. The stages of CFA were model specification, model identification, model estimation, model testing, and model respecification [41]. The CFA was performed using the Lisrel 8.8.

3.1. Model specification

The integration scale is multidimensional, meaning the IS structure is reflected in other latent structures and indicators. A second-order CFA model was used in the analysis of this instrument. The multidimensional construct of the test was used in the research model on two sides: the first-order construct was reflected by its indicators, and the first-order construct reflected the higher-order construct.

3.2. Model Identification

The total number of indicators was sixteen, so the sample moment for the second-order factor model was the sum of $p(p+1)/2=16(17)/2=135$ unique values. The estimated number of parameters was 37, comprised of 16-factor loadings, five second-order factor loads, and 16 error variances. As a result, the degrees of freedom (df) for the CFA integration model was $135-37=98$, models over-identified. The CFA analysis was feasible.

3.3. Model estimation

The data was examined for multivariate normality before determining an estimating model. The calculation of multivariate normality using Lisrel 8.8 revealed that the data were not multivariate normal ($0.001 < 0.05$). Thus, estimate models using robust machine learning (ML) by incorporating asymptotic covariance matrix-transformed data [42], [43].

3.4. Model testing

Table 3 lists the categories, parameters, and criteria used to determine how well the model fits. According to Table 3, all of the tested models are a good fit. The value is also monitored comparably, so the instrument can be used on three levels: assessment of each aspect, evaluation of each factor, and general integration [12].

Table 3. Good fit of model the integration scale

Category	Parameter Fit	Criteria	Output			Conclusion
			Model A	Model B	Model C	
Absolute fit	P-value	≥ 0.05	<0.01	<0.01	<0.01	Poor Fit
	GFI	≥ 0.90	0.94	0.94	0.94	Good Fit
	RMSEA	≤ 0.08	0.039	0.041	0.041	Good Fit
	SRMR	≤ 0.09	0.055	0.058	0.060	Good Fit
Incremental fit	CFI	≥ 0.90	0.98	0.98	0.98	Good Fit
	NNFI	≥ 0.90	0.98	0.98	0.98	Good Fit
	NFI	≥ 0.90	0.95	0.98	0.98	Good Fit
	IFI	≥ 0.90	0.98	0.98	0.98	Good Fit
Parsimony fit	AGFI	≥ 0.90	0.92	0.98	0.98	Good Fit
	PNFI	Bigger better	0.74	0.77	0.78	Better Model C

Note: Model A is the correlation model; Model B is the academic and social model; and Model C is the higher order integration model. Cut-off criteria by Hair *et al.* [42]

Figure 2 displays the correlation coefficient between the latent variable and the loading factor of each item. There are 10 correlations between the variables under consideration, with six of them being classified as medium and the remaining four as small effects. Model A also shows that the correlation between the latent variables within a given factor exhibits a correlation coefficient that is around the medium range. Nevertheless, there exists a strong positive association between affective involvement and faculty interactions. The evidence suggests an important connection between affection of academics and the ability

of students to establish relationships with their lecturers. The association between academic and social factors, together with the loading factor of each item, is displayed in Figure 3. The findings align with the previous research [12]. Figure 4 displays a higher-order model of general integration. In model C, it appears that four latent variables have a higher loading factor, namely affective involvement, achievement orientation, faculty interactions, student interactions, and there is one with lower loading factor, performance. There is no substantial difference between models A, B, and C for the loading factors of each item.

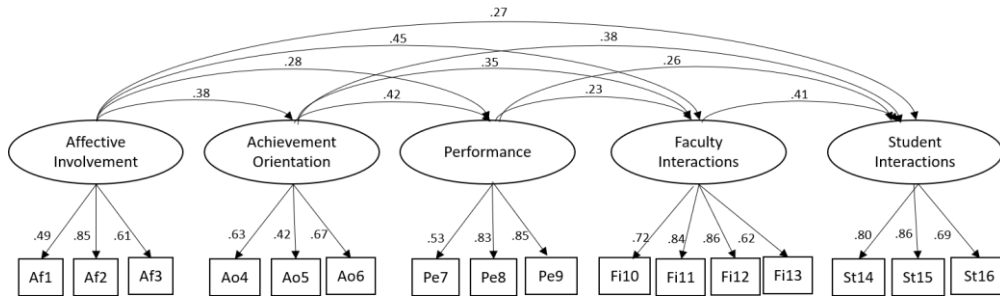


Figure 2. Diagram path correlation model (A)

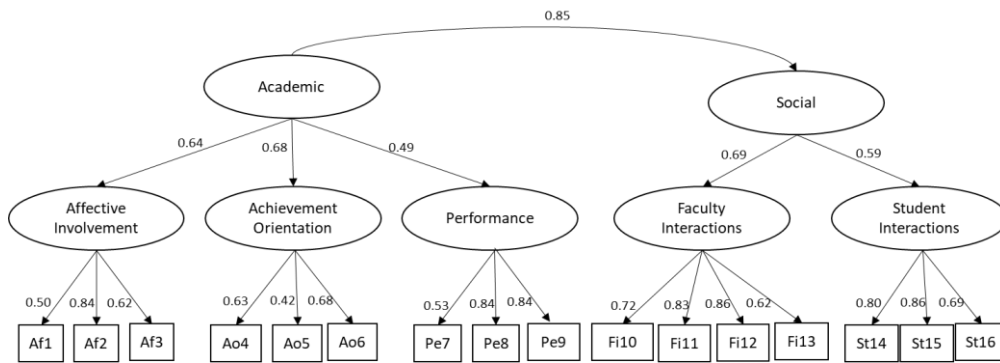


Figure 3. Diagram path academic and social model (B)

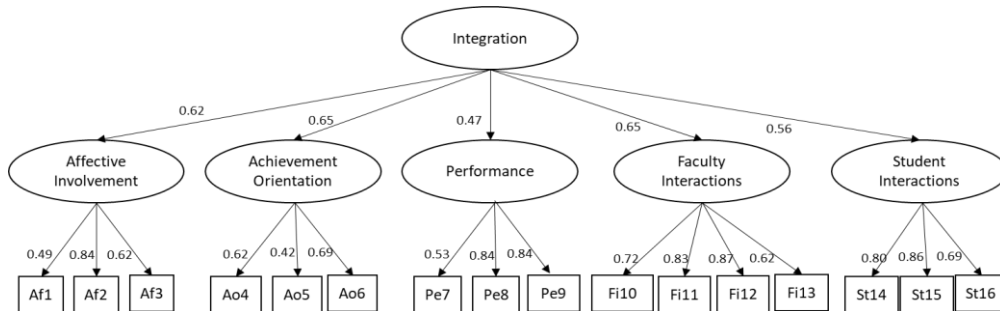


Figure 4. Diagram path higher order the integration scale model (C)

3.4.1. Construct validity

Construct validity can be seen in convergence validity and discriminant validity. The standardized factor loading value shown in Table 4 is significant for convergence validity. According to Hair *et al.* [42], if the sample size is greater than 250, loading factor values between 0.42 and 0.87 are acceptable. They all meet the loading factor criteria. Confirmatory factor analysis revealed a t-value greater than 1.96 and a factor load greater than the critical value, indicating validity [42]. These findings demonstrate the validity of convergence.

Table 4. Item, loading factor, mean, and standard deviation the integration scale

No.	Item Indonesian and original version	λ	Mean	S.D
Academic integration factor				
Affective involvement				
1	<i>Saya sepenuhnya memahami materi-materi dalam bidang studi saya.</i> (I can completely identify with my studies.)	0.49	3.29	0.66
2	<i>Saya sangat menyukai program studi yang saya ambil.</i> (I enjoy my field of studies very much.)	0.84	4.01	0.85
3	<i>Sejujurnya, program studi yang saya ambil tidak membuat saya bersemangat.</i> (To be honest, my studies don't thrill me.)*	0.62	1.96	0.94
Achievement orientation				
4	<i>Saya melakukan banyak usaha agar studi saya berhasil.</i> (I invest a great deal of effort in order to be successful in my studies.)	0.62	4.10	0.80
5	<i>Saya tidak menggunakan waktu untuk lebih banyak belajar dari yang seharusnya dibutuhkan.</i> (I do not dedicate more time to my studies than absolutely necessary.)*	0.42	3.05	0.93
6	<i>Saya mengejar target prestasi akademik yang tinggi.</i> (I pursue high aspirations concerning my academic performances.)	0.69	3.80	0.95
Perceived academic performance				
7	<i>Prestasi akademik (nilai) saya lebih baik daripada yang pernah saya harapkan.</i> (My academic achievements (grades) are better than I had originally expected.)	0.53	3.50	0.91
8	<i>Saya merasa puas dengan kinerja saya di program studi ini.</i> (I am satisfied with my performance in the degree program.)	0.84	3.23	0.91
9	<i>Saya telah memenuhi harapan pribadi mengenai hasil kinerja dan nilai di program studi ini.</i> (I have fully met my own expectations for my performance and grades in this degree program.)	0.84	3.15	0.87
Social integration factor				
Interactions with faculty				
10	<i>Saya berhubungan baik dengan dosen-dosen di program studi saya.</i> (I get along well with the instructors in my degree program.)	0.72	3.27	0.68
11	<i>Sebagian besar dosen memperlakukan saya dengan baik.</i> (Most of the instructors treat me fairly.)	0.83	3.47	0.55
12	<i>Saya merasa diterima oleh para dosen.</i> (I feel accepted by the instructors.)	0.87	3.43	0.55
13	<i>Para dosen memperhatikan pendapat yang saya sampaikan.</i> (The instructors are interested in what I have to say.)	0.62	3.40	0.55
Interactions with fellow students				
14	<i>Saya berhasil membangun koneksi dengan mahasiswa lain selama masa studi.</i> (I have been successful in building contacts with other students during my studies.)	0.80	3.36	0.67
15	<i>Saya mengenal banyak teman sekelas yang dapat menjadi teman diskusi mengenai materi kuliah.</i> (I know a lot of classmates with whom I can exchange ideas about questions in my field of study.)	0.86	3.28	0.78
16	<i>Saya sering berinteraksi dengan teman satu angkatan saya.</i> (I have many contacts with students in my cohort.)	0.69	3.05	0.89

Note: *Unfavorable item

Discriminant validity is a requirement that must be met to show that a measurement construct is valid [42]. The discriminant validity can be found by taking the square root of the average extracted variable (AVE) and comparing it to the correlation square (R^2) value between the structures. Table 5 shows how to calculate the AVE value. Table 5 shows the values of the square AVE, square correlation, and correlation coefficient. The diagonal value of the square root of AVE is greater than the value of R^2 for each factor. This means that the adaptation IS scale has met the criteria for discriminant validity, and each part of the construct better explains the difference in the construct [42].

Table 5. Value of R^2 , r, and discriminant validity of the integration scale

	Affective	Achievement	Performance	Faculty	Student
Affective	0.66	0.63	0.54	0.63	0.59
Achievement	0.40	0.72	0.55	0.65	0.6
Performance	0.29	0.30	0.75	0.55	0.51
Faculty	0.40	0.42	0.30	0.77	0.6
Student	0.35	0.36	0.26	0.36	0.79

Note: The diagonal value is the square root AVE; below the diagonal is a square correlation (R^2), and above the diagonals is the correlation coefficient (r).

3.4.2. Reliability

Confirmatory factor analysis can provide reliability values, which include construct reliability (CR) and extracted average variance (AVE). Table 6 shows in detail the calculations of CR and AVE. Equation (1) and (2) show the formula for construct reliability (CR) and extracted average variance (AVE) [42].

$$CR = \frac{(\sum \text{Standardized Loading})^2}{(\sum \text{Standardized Loading})^2 + (\sum \text{Measurement Error})} \quad (1)$$

$$AVE = \frac{\sum \text{Standardized Loading}^2}{\sum \text{Standardized Loading}^2 + \sum \text{Measurement Error}} \quad (2)$$

Table 6. Construct reliability the integration scale

Dimension	Item	λ	λ^2	ϵ	CR	AVE	Result
Affective involvement	1	0.49	0.24	0.76	0.69	0.44	Acceptable reliability
	2	0.84	0.71	0.29			
	3	0.62	0.38	0.62			
	\sum	1.95	1.33	1.67			
	$(\sum \lambda)^2$	3.80	-	-			
Achievement orientation	4	0.62	0.38	0.62	0.604	0.35	Acceptable reliability
	5	0.42	0.18	0.82			
	6	0.69	0.48	0.52			
	\sum	1.73	1.04	1.96			
	$(\sum \lambda)^2$	2.99	-	-			
Perceived academic performance	7	0.53	0.28	0.72	0.79	0.56	Good reliability
	8	0.84	0.71	0.29			
	9	0.84	0.71	0.29			
	\sum	2.21	1.69	1.31			
	$(\sum \lambda)^2$	4.88	-	-			
Interactions with faculty	10	0.72	0.52	0.48	0.85	0.59	Good reliability
	11	0.83	0.69	0.31			
	12	0.87	0.76	0.24			
	\sum	3.04	2.35	1.65			
	$(\sum \lambda)^2$	9.24	-	-			
Interactions with fellow students	14	0.80	0.64	0.36	0.83	0.62	Good reliability
	15	0.86	0.74	0.26			
	16	0.69	0.48	0.52			
	\sum	2.35	1.86	1.14			
	$(\sum \lambda)^2$	5.52	-	-			

If the CR value is ≥ 0.7 , it indicates good reliability; a CR value of 0.6 to approximately 0.7 and an AVE value of ≥ 0.5 indicates acceptable reliability [42]. However, Huang *et al.* [44] use the opinion that if $CR > 0.6$ while AVE is below 0.5, then convergence validity remains adequate. Based on Table 6, performance factors, faculty, and students have high construct reliability, while affective and achievement reliability factors are still adequate. The calculation of reliability based on internal consistency, indicated by the Cronbach alpha value, is 0.813 (IS full scale); 0.730 (factor academic integration); 0.809 (factor social integration); 0.655 (affective aspect); 0.584 (achievement aspect); 0.772 (performance aspect); 0.838 (faculty aspect) and 0.814 (student aspect). These values indicate that the integration scale measurement is reliable based on internal consistency. Item-rest correlation values are greater than 0.3 except for items 5 and 7, but their removal will not change internal consistency; therefore, they are retained.

4. CONCLUSION

The study aimed to adapt the IS and demonstrate its validity. Six stringent steps have adapted the IS instrument. Items of adaptation whose sentences have met comparability of language and similarity of interpretation prove their validity. The results of empirical evidence of validity indicate that the internal structure validity and construct reliability of the adaptation of IS into the Indonesian language and culture were high. All of the items were valid and reliable. The IS Indonesian version had five aspects and two factors, confirmed as a multidimensional scale. The Integration Scale Indonesian version can evaluate college students' integration with campus life. The IS can identify the outcomes of student integration so that appropriate treatment can be administered when improvement is required. In addition, the student score results can assess to what extent the institution facilitates the academic development of its students and can notice how lecturers interact with students. The outcomes of student integration become essential when designing various intervention programs for student rehabilitation, prevention, and promotion of both their social and academic lives. Therefore, future research needs to analyze student integration profiles related to academic achievement, graduation timeline precision, and departure intensity.




REFERENCES

- [1] E. Fincham, B. Rozemberczki, V. Kovanovic, S. Joksimovic, J. Jovanovic, and D. Gasevic, "Persistence and Performance in Co-Enrollment Network Embeddings: An Empirical Validation of Tinto's Student Integration Model," *IEEE Transactions on Learning Technologies*, vol. 14, no. 1, pp. 106–121, 2021, doi: 10.1109/TLT.2021.3059362.
- [2] B. F. French and W. Oakes, "Reliability and validity evidence for the institutional integration scale," *Educational and Psychological Measurement*, vol. 64, no. 1, pp. 88–98, 2004, doi: 10.1177/0013164403258458.
- [3] K. Resch, G. Alnahdi, and S. Schwab, "Exploring the effects of the COVID-19 emergency remote education on students' social and academic integration in higher education in Austria," *Higher Education Research & Development*, vol. 42, no. 1, pp. 215–229, Jan. 2023, doi: 10.1080/07294360.2022.2040446.
- [4] H. Asikainen, J. Blomster, T. Cornér, and J. Pietikäinen, "Supporting student integration by implementing peer teaching into environmental studies," *Journal of Further and Higher Education*, vol. 45, no. 2, pp. 162–182, 2020, doi: 10.1080/0309877X.2020.1744541.
- [5] J. Liew, Q. Cao, J. N. Hughes, and M. H. F. F. Deutz, "Academic Resilience Despite Early Academic Adversity: A Three-Wave Longitudinal Study on Regulation-Related Resiliency, Interpersonal Relationships, and Achievement in First to Third Grade," *Early Education and Development*, vol. 29, no. 5, pp. 762–779, 2018, doi: 10.1080/10409289.2018.1429766.
- [6] H. Li, "The 'secrets' of Chinese students' academic success: academic resilience among students from highly competitive academic environments," *Educational Psychology*, vol. 37, no. 8, pp. 1001–1014, 2017, doi: 10.1080/01443410.2017.1322179.
- [7] D. H. Breidenbach and B. F. French, "Ordinal logistic regression to detect differential item functioning for gender in the institutional integration scale," *Journal of College Student Retention: Research, Theory and Practice*, vol. 12, no. 3, pp. 339–352, 2010, doi: 10.2190/CS.12.3.e.
- [8] S. J. Mertes, "Social Integration in a Community College Environment," *Community College Journal of Research and Practice*, vol. 39, no. 11, pp. 1052–1064, 2015, doi: 10.1080/10668926.2014.934973.
- [9] A. M. Brower, "The 'Second Half' of Student Integration," *The Journal of Higher Education*, vol. 63, no. 4, pp. 441–462, 1992, doi: 10.1080/00221546.1992.11778378.
- [10] V. Tinto, "Dropout from Higher Education: A Theoretical Synthesis of Recent Research," *Review of Educational Research*, vol. 45, no. 1, pp. 89–125, 1975, doi: 10.3102/00346543045001089.
- [11] A. U. Ekwonye and V. DeLauer, "Exploring Individual and Interpersonal Level Factors Associated with Academic Success of College Students at a Women's, Faith-based Higher Institution," *Higher Education Studies*, vol. 9, no. 1, p. 86, 2019, doi: 10.5539/hes.v9n1p86.
- [12] G. Dahm, O. Lauterbach, and S. Hahn, "Measuring Students' Social and Academic Integration—Assessment of the Operationalization in the National Educational Panel Study," in *Methodological Issues of Longitudinal Surveys: The Example of the National Educational Panel Study*, Springer Fachmedien Wiesbaden, 2016, pp. 313–329, doi: 10.1007/978-3-658-11994-2.
- [13] J. J. Arnett, *Adolescence and emerging adulthood: A cultural approach*, Sixth Ed. New Jersey: Pearson Education, Inc., 2018.
- [14] Z. Fei, A. Rasli, T. O. Kowang, G. C. Fei, and H. P. Koh, "Journey to the south: A case study of a Chinese PhD student in a Malaysian university," *International Journal of Evaluation and Research in Education (IJERE)*, vol. 12, no. 1, pp. 76–85, 2023, doi: 10.11591/ijere.v12i1.23594.
- [15] A. V. S. Quiñones, C. E. Bustos, M. V. Perez, D. L. Peralta, N. Zañartu, and J. I. Vergara del Solar, "Metasynthesis Regarding the Sociocultural Adaptation of International University," *The Qualitative Report*, vol. 26, no. 5, pp. 1567–1600, 2021, doi: 10.46743/2160-3715/2021.4623.
- [16] M. Wanti, R. Wesseling, H. Biemans, and P. den Brok, "The role of social factors in access to and equity in higher education for students with low socioeconomic status: A case study from Indonesia," *Equity in Education & Society*, vol. 2, no. 1, pp. 43–60, Apr. 2023, doi: 10.1177/27526461221140570.
- [17] H. Seli and M. H. Dembo, *Motivation and Learning Strategies for College Success: A Focus on Self-Regulated Learning*, Sixth Ed. New York: Taylor and Francis, 2020.
- [18] M. Amin, A. M. Sibuea, and B. Mustaqim, "The effectiveness of Moodle among engineering education college students in Indonesia," *International Journal of Evaluation and Research in Education (IJERE)*, vol. 12, no. 1, pp. 1–8, 2023, doi: 10.11591/ijere.v12i1.23325.
- [19] K. Haryono and A. Hamzah, "Blended learning: Adoption pattern of online classrooms in higher education," *International Journal of Evaluation and Research in Education (IJERE)*, vol. 12, no. 1, pp. 302–310, 2023, doi: 10.11591/ijere.v12i1.23772.
- [20] H. Hafa, B. Hafa, and M. Moubtassime, "Distance learning during COVID-19 pandemic: A study of Moroccan university students," *International Journal of Evaluation and Research in Education (IJERE)*, vol. 12, no. 1, pp. 487–494, 2023, doi: 10.11591/ijere.v12i1.23390.
- [21] G. W. Metz, "Challenge and Changes to Tinto's Persistence Theory: A Historical Review," *Journal of College Student Retention: Research, Theory & Practice*, vol. 6, no. 2, pp. 191–207, 2004, doi: 10.2190/m2cc-r7y1-wy2q-upk5.
- [22] B. Yu and E. Wright, "Socio-cultural adaptation, academic adaptation and satisfaction of international higher degree research students in Australia," *Tertiary Education and Management*, vol. 22, no. 1, pp. 49–64, Jan. 2016, doi: 10.1080/13583883.2015.1127405.
- [23] J. J. Shaughnessy, E. B. Zechmeister, and J. S. Zechmeister, *Research Methods in Psychology*, Tenth Ed. New York: McGraw-Hill Education, 2015.
- [24] E. T. Pascarella and P. T. Terenzini, "Predicting Freshman Persistence and Voluntary Dropout Decisions from a Theoretical Model," *The Journal of Higher Education*, vol. 51, no. 1, pp. 60–77, 1980, doi: 10.2307/1981125.
- [25] A. Chrysikos, E. Ahmed, and R. Ward, "Analysis of Tinto's student integration theory in first-year undergraduate computing students of a UK higher education institution," *International Journal of Comparative Education and Development*, vol. 19, no. 2/3, pp. 97–121, 2017, doi: 10.1108/ijced-10-2016-0019.
- [26] R. Trigueros, A. Padilla, J. M. Aguilar-Parra, I. Mercader, R. López-Liria, and P. Rocamora, "The Influence of Transformational Teacher Leadership on Academic Motivation and Resilience, Burnout and Academic Performance," *International Journal of Environment Research and Public Health*, vol. 17, p. 7687, 2020, doi: 10.3390/ijerph17207687.
- [27] S. Cassidy, "Resilience Building in Students: The Role of Academic Self-Efficacy," *Frontiers in Psychology*, vol. 6, p. 1781, Nov. 2015, doi: 10.3389/fpsyg.2015.01781.
- [28] E. E. Morales, "Learning from Success: How Original Research on Academic Resilience Informs what College Faculty Can do to Increase the Retention of Low Socioeconomic Status Students," *International Journal of Higher Education*, vol. 3, no. 3, pp. 92–102, 2014, doi: 10.5430/ijhe.v3n3p92.
- [29] D. R. Brooms, "'I Was Just Trying to Make It': Examining Urban Black Males' Sense of Belonging, Schooling Experiences, and Academic Success," *Urban Education*, vol. 54, no. 6, pp. 804–830, 2019, doi: 10.1177/0042085916648743.
- [30] L. M. Portnoi and T. M. Kwong, "Employing Resistance and Resilience in Pursuing K-12 Schooling and Higher Education: Lived Experiences of Successful Female First-Generation Students of Color," *Urban Education*, vol. 54, no. 3, pp. 430–458, 2019, doi: 10.1177/0042085915623333.




- [31] G. Wills and H. Hofmeyr, "Academic resilience in challenging contexts: Evidence from township and rural primary schools in South Africa," *International Journal of Educational Research*, vol. 98, pp. 192–205, 2019.
- [32] T. Agasisti and S. Longobardi, "Equality of Educational Opportunities, Schools' Characteristics and Resilient Students: An Empirical Study of EU-15 Countries Using OECD-PISA 2009 Data," *Social Indicators Research*, vol. 134, no. 3, pp. 917–953, 2017, doi: 10.1007/s11205-016-1464-5.
- [33] A. Sandoval-Hernández and P. Białowolski, "Factors and conditions promoting academic resilience: a TIMSS-based analysis of five Asian education systems," *Asia Pacific Education Review*, vol. 17, no. 3, pp. 511–520, 2016, doi: 10.1007/s12564-016-9447-4.
- [34] T. Agasisti and S. Longobardi, "Inequality in education: Can Italian disadvantaged students close the gap?" *Journal of Behavioral and Experimental Economics*, vol. 52, pp. 8–20, 2014, doi: 10.1016/j.socec.2014.05.002.
- [35] N. A. Reynoso, "Academic Resiliency Among Dominican English-Language Learners," *Community College Journal of Research and Practice*, vol. 32, pp. 391–434, 2008.
- [36] A. Al-Oraibi *et al.*, "Exploring the Psychological Impacts of COVID-19 Social Restrictions on International University Students: A Qualitative Study," *International Journal of Environmental Research and Public Health*, vol. 19, no. 13, p. 7631, Jun. 2022, doi: 10.3390/ijerph19137631.
- [37] I. Havrila and C. Zhang, "Comparison of onshore and offshore student learning experience in an economic unit of study," *Journal of International Education in Business*, vol. 2, no. 1, pp. 2–19, 2009, doi: 10.1108/18363261080001591.
- [38] I. T. Commission, "ITC Guidelines for Translating and Adapting Tests (Second Edition)," *International Journal of Testing*, vol. 18, no. 2, pp. 101–134, 2017, doi: 10.1080/15305058.2017.1398166.
- [39] A. D. Sperber, "Translation and validation of study instruments for cross-cultural research," *Gastroenterology*, vol. 126, no. 1, pp. S124–S128, Jan. 2004, doi: 10.1053/j.gastro.2003.10.016.
- [40] D. F. Polit, C. T. Beck, and S. V. Owen, "Focus on Research Methods: Is the CVI an Acceptable Indicator of Content Validity? Appraisal and Recommendations," *Research in Nursing and Health*, vol. 30, no. 4, pp. 459–467, 2007, doi: 10.1002/nur.20199.
- [41] R. E. Schumacker and R. G. Lomax, *A Beginner's Guide to Structural Equation Modeling*, Fourth Ed. New York: Routledge, 2015, doi: 10.4324/9781315749105.
- [42] J. F. J. Hair, W. C. Black, B. J. Babin, and R. E. Anderson, *Multivariate Data Analysis*, Eighth Edition. Hampshire: Cengage Learning EMEA, 2019.
- [43] T. A. Brown, *Confirmatory Factor Analysis for Applied Research*, Second Edition. New York: The Guilford Press, 2015.
- [44] C.-C. Huang, Y.-M. Wang, T.-W. Wu, and P.-A. Wang, "An Empirical Analysis of the Antecedents and Performance Consequences of Using the Moodle Platform," *International Journal of Information and Education Technology*, vol. 3, no. 2, pp. 217–221, 2013, doi: 10.7763/IJiet.2013.V3.267.

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