

Research Article

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Author for correspondence:

Faizah

 faizah_hermawan@ub.ac.id

 Psychology Doctoral Program of Universitas Airlangga; Psychology Department of Universitas Brawijaya

Beyond Connection: Cross-Cultural Adaptation and Validation of the Social Connectedness Scale for Indonesian University Students

Faizah , Dewi Retno Suminar , Nono Hery Yoenanto 

Abstract

Background/purpose. Indonesian undergraduates face heightened risks of loneliness, academic stress, and digital-era isolation, yet no student-focused Indonesian adaptation of the Social Connectedness Scale (SCS/SCS R) exists; this study aimed to cross-culturally adapt and validate SCS and SCS R for Indonesian university students.

Materials/methods. Using a cross sectional design, the instruments underwent forward-back translation, expert review with Content Validity Index (CVI), cognitive interviews (n=10), and Confirmatory Factor Analysis (CFA) on screened survey data from Indonesian undergraduates (n=349); reliability was assessed with Cronbach's α and McDonald's ω , and multiple fit indices (CFI, TLI, RMSEA, SRMR, GFI) guided model evaluation.

Results. Content validity was excellent (I CVI=1; S CVI=1), and cognitive interviews supported response process clarity with minor wording refinements; demographics showed no meaningful effects. The 8-item SCS achieved a stronger fit (CFI=0.956, TLI=0.939, SRMR=0.035, GFI=0.995; loadings ≥ 0.419), while the 20-item SCS R showed marginal fit (CFI=0.866, TLI=0.850) but higher reliability ($\alpha=0.879$; $\omega=0.904$) than SCS ($\alpha=0.823$; $\omega=0.824$); both models had RMSEA=0.069.

Conclusion. Both SCS and SCS R are valid and reliable for Indonesian undergraduates; SCS offers parsimony and superior model fit, whereas SCS R provides stronger internal consistency, enabling selection by study purpose (screening vs. comprehensive profiling). Future work should test longitudinal/predictive validity, as well as measurement invariance across subgroups and over time, to strengthen generalizability and policy utility in collectivist higher education contexts.



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1. Introduction

Social connectedness is a crucial aspect of psychological well-being and academic success, particularly for students during the transitional period of emerging adulthood. Transitions, instability, and an increased risk of mental health issues such as anxiety and depression characterize this stage of life (Arnett, 2000; Padilla-walker et al., 2017; Schulenberg, J. E., & Zarrett, 2006). In Indonesian culture, which gives importance to fellowship and social participation, strong social relations become one of the essential resources for academic and social adaptation, but students in Indonesia have many challenges, such as loneliness, overuse of social media, cyberbullying, academic stress, and the ongoing global pandemic (Handono et al., 2019; Padamaley et al., 2024; Wiguna et al., 2020), which underscores the urgent need for a valid and reliable measure of social connectedness.

The social connectedness of Indonesian students was measured using instruments designed for collectivist cultures. This scale is also reliable (ICC=0.93) in measuring social participation (Komalasari et al., 2022) and captures strong group identification (Beldad & Kusumadewi, 2015). No validated instrument specifically targeting social connectedness among Indonesian university students is currently available. Bagaskara and Widyastuti (2023). Also, the SCS-R has high reliability and a unidimensional structure in the community population. The discussion then broadens the horizon by including the Social Connectedness Scale (SCS) and its revision (SCS-R) (Lee et al., 2001; Lee & Robbins, 1995, 2000; Wolf et al., 2016). The SCS involves eight negative items on a six-point Likert scale, while the SCS-R adds ten positive items, for a total of twenty. Both measures have consistently been unidimensional and reliable across various studies. However, this research focuses on adaptation to a student context, with differences in the sample, results, and item translation.

It is derived from these developments that the SCS and SCS-R have been adapted into various languages and cultural dimensions. Examples include countries such as China (Fu et al., 2024; Wu et al., 2022), Brazil (Rabelo & Pilati, 2021; Soares et al., 2023), Italy (Capanna et al., 2013), Taiwan (Chen & Chung, 2007), and Japan (Nguyen et al., 2019). While the overwhelming results support a unidimensional structure, some studies have noted complexities; for example, a three-factor structure in specific clinical populations (Fu et al., 2024). These variations illustrate that cross-cultural adaptation requires more than linguistic translation, demanding contextual adjustments to maintain conceptual equivalence.

Following this cataloging of global evidence, it is essential to delineate how the adaptation effort unfolded in the Indonesian context. Bagaskara and Widyastuti (2023) adapted the SCS-R into Bahasa Indonesia and subjected it to psychometric analysis among the general population. The findings showed high reliability levels and unidimensionality. However, no study has validated either the SCS or SCS-R among Indonesian undergraduates, whose linguistic preferences and developmental characteristics differ from those of the general population. This gap is significant, given that young adults in university settings experience unique transitional challenges that may affect how they interpret scale items.

Therefore, this study aims to address this gap by conducting a systematic cross-cultural adaptation and psychometric validation of both the SCS and SCS-R for Indonesian university students. This study incorporates translation, expert review, cognitive interviewing, and Confirmatory Factor Analysis to ensure equivalence and robust measurement performance. The findings are expected to provide valid and reliable instruments suited to higher-education settings in collectivist contexts.

2. Literature Review

2.1. Concept of Social Connectedness

The concept of social connectedness, highlighted by Lee and Robbins (1995), emphasizes that social relationships are at the very core of personal well-being and adjustment. Social connectedness is thus considered a very potent psychological resource that helps people to feel accepted and happy with their social lives (R. M. Lee & Robbins, 1995; Robbins, 2000).

Social connectedness, a trait of individuals, is an indicator of how individuals estimate their intimacy with the social environment (R. M. Lee & Robbins, 1995). It is a personal belief about the strength of relationships with others. The way a person understands and sees their closeness to other people, society, and the world (Lee et al., 2001; Robbins, 2000). People with a strong feeling of connectedness consider themselves part of their family, social, or friendship groups, and they label themselves as friendly people (Lee et al., 2001; Lee & Robbins, 1995). Besides, studies show that social connectedness is a significant factor affecting community mental health, and people with poor social ties suffer from poor mental and physical health more than those with good relationships. For example, depression and higher mortality rates are among the extreme cases (Saeri et al., 2018).

Social connectedness has a significant impact on mental health, acting as a 'social remedy' for poor psychological well-being. Higher levels of social connectedness are associated with greater psychological well-being over time, particularly among adolescents (Jose et al., 2012). Furthermore, research shows that social connectedness is related not only to psychological well-being but also to community mental health (Saeri et al., 2018). The influence of social connectedness extends to various demographic groups (Jose et al., 2012). According to this definition, social connectedness occurs when a person understands and has a positive relationship with their social environment.

2.2. Social Connectedness Scale

The social connectedness dimension measures individuals' feelings of social connectedness as a unidimensional construct (R. M. Lee & Robbins, 1995). All items of this construct measure the same facet: overall social connectedness. The structure has been confirmed, through confirmatory factor analyses, in several cultural adaptations, including the Indonesian and Italian versions (Bagaskara & Widyastuti, 2023; Capanna et al., 2013).

Expansion of the scope of the social connectedness construct has occurred (R. M. Lee et al., 2001). Nevertheless, the original version remains popular due to its practical orientation and simplicity of unidimensionality. Therefore, it is a reliable and practical instrument for measuring social connectedness across the globe and among different population groups (Bagaskara & Widyastuti, 2023; Capanna et al., 2013).

The Social Connectedness Scale (SCS) was created by Lee and Robbins (1995), an 8-item instrument that measures a single dimension: overall social connectedness. It proves to have very high internal consistency, in addition to impressive test-retest reliability with the 6-point Likert response format. However, there is a revised version, which consists of 20 items (SCS-R) that extend the scope of the construct (R. M. Lee et al., 2001). While this longer version is still frequently used, the first 8-item scale enjoys its own popularity, as it is easier to use and is clearly unidimensional; hence, it is a practical and sound instrument for assessing overall social connectedness across diverse population groups (Bagaskara & Widyastuti, 2023; Capanna et al., 2013).

3. Methodology

In the study of instrument adaptation and validation, cross-sectional designs may be said to be effective methodological approaches since they aim to collect representative samples at a single time point when measuring prevalence or making comparisons to evaluate instruments for measurement

(Kesmodel, 2018; Setia, 2016). The cross-sectional must constitute validations with systematic stages such as translation and back-translation, expert panel consultation for content validity, pilot testing, and a full psychometric evaluation, including factor analysis and tests for internal consistency, among others, for the instrument to be credible, valid, and reliable (Hirsch et al., 2016; Pereira et al., 2019). Accordingly, for practical and resource reasons, selection was made through a convenience sampling method from different academic years. Informed consent was obtained from all participants, and the pilot study had already been approved by the Institutional Ethics Committee of the Faculty of Psychology.

Based on the a priori calculation using Daniel Soper's Free Statistics Calculators for a Confirmatory Factor Analysis (CFA) model—with an anticipated effect size of 0.10, statistical power of 0.95, one latent variable, 20 observed indicators, and a significance level of $\alpha = 0.05$ —a minimum sample size of 328 respondents is required. In the context of CFA, this sample size provides adequate power to detect small to moderate factor loadings at the 5% significance level, stabilizes parameter estimates (including loadings and error variances), and enhances the reliability of goodness-of-fit indices for a model with 20 indicators. Moreover, it helps minimize the risk of improper solutions and ensures a more robust parameter-to-sample ratio, thereby improving the validity and generalizability of the factor structure interpretation.

3.1. Participants

All participants willing to take part in the dissertation research titled “Flourishing Model in Undergraduate Students” will complete an informed consent form. The study involves cognitive interviews to assess the clarity, relevance, and understanding of the instrument items and questionnaire responses. The study will involve testing the response process on 10 students and validating the internal structure on 349 undergraduate students. Participants were selected using convenience sampling, a practical strategy widely used in adaptation studies. The inclusion criteria are that participants are active non-vocational undergraduate students aged 18–24 years and willing to participate. Those who do not meet the requirements or are unwilling to participate will be excluded. Participation is voluntary and can be terminated at any time without consequence; data confidentiality will be maintained. Participants have the right to ask questions at any time and will receive a reward in the form of an e-voucher upon completion of the study. This study poses no physical risks and will contribute to the development of improved instruments. Consent indicates that participants have read, understood, and agreed to participate. Table 1 outlines the inclusion criteria for each participant according to the stages of assessing this research instrument.

Table 1. Criteria for research participants

No	Research stage measurement tool	Number of participants	Criteria
1.	Translation	Four translators	Two English-Indonesian translators have lived in an English-speaking country for at least two years and have excellent TOEFL or IELTS scores.
2.	Validation: Test content evidence	There were five expert reviewers in total: two language reviewers and three content reviewers.	Two experts, both with backgrounds in psychology and English, as evidenced by their educational qualifications. Three experts with a background in educational psychology and development who speak English fluently, as evidenced by their academic qualifications

No	Research stage measurement tool	Number of participants	Criteria
3.	Validation: Response process evidence	10 participants	and TOEFL/IELTS scores, and who currently work as lecturers.
4.	Validation: Internal structure	349 participants	The ten students who met the inclusion criteria were active first-year undergraduates aged between 18 and 24 who agreed to participate in the study. Undergraduate students aged 18–24 in Indonesia who are currently enrolled in undergraduate programs (not vocational ones) and who are willing to take part in the survey.

Analysis of Table 2 shows that only the intercept is statistically significant ($F = 774.930$; $p < 0.001$), with a partial eta squared of 0.698 indicating a very large practical effect. Conversely, demographic variables such as sex, age, organisation, and interactions between variables are not significant ($p > 0.05$), with very small effect sizes (≤ 0.013). This suggests that the tested demographic or organisational factors do not substantially influence participant representation. These findings are consistent with the theory that demographic disparities in academic performance can be fully mediated by differences in students' initial preparation. Salehi et al. (2019) found that, when controlling for preparation variables such as pretest scores, differences by gender, minority status, or first-generation college status were no longer significant in predicting students' exam performance.

Table 2. Statistical differences in the representation of participants

Source	F	Sig.	Partial Eta Squared	Brief Interpretation
Intercept	774.930	0.000	0.698	The intercept value is significant; the average response differs significantly from zero, with a large effect.
Sex	2.353	0.126	0.007	Not significant ($p > 0.05$); the difference based on gender is very small.
Age	0.569	0.636	0.005	Not significant; the difference in age scores on the dependent variable is very small.
Organization	0.058	0.810	0.000	Not significant; organisational factors do not influence the results.
Sex * Age	2.187	0.114	0.013	Not significant; the interaction between gender and age scores has no significant effect.
Sex * Organization	0.283	0.595	0.001	Not significant; the interaction between gender and organisation has a very small effect.
Age * Organization	0.785	0.457	0.005	Not significant; the interaction between age scores and organisation has no significant effect.
Sex * Age * Organization	0.414	0.662	0.002	Not significant; the interaction of the three factors does not influence the results.

3.2. Instruments

The Social Connectedness Scale (SCS), initially created by Lee and Robbins (1995), is an 8-item, unidimensional tool that gauges the level of interpersonal closeness individuals experience in their social world. The original scale comprises negatively phrased items that are scored on a 6-point Likert scale from 1 (strongly agree) to 6 (strongly disagree), with higher scores indicating a greater sense of belonging. Nevertheless, the usage of negatively formulated items only at times resulted in response bias (Morán et al., 2022; Özdoğru et al., 2025). With respect to validity, the confirmatory factor analysis yielded a very good fit with the other belongingness construct, social assurance (Incremental Fit Index = .92), and the scale is significantly correlated with self-esteem, social support, anxiety, and academic performance (Lee & Robbins, 2000). As for the reliability, the initial scale showed excellent internal consistency ($\alpha = .91$) and test-retest reliability over two weeks ($r = .96$), which points to stable and consistent measurements across time (Lee & Robbins, 2000).

To address these limitations, Lee et al. (2001) proposed the Social Connectedness Scale-Revised (SCS-R), which was increased to 20 items made up of 10 positive and 10 negative statements, thus offering better psychometric properties, less response bias, and keeping the unidimensionality of the scale (Capanna et al., 2013; Lee et al., 2001; Morán et al., 2022). The construct validity was reinforced by factor analyses yielding a unidimensional structure, with scores displaying negative correlations with depression, anxiety, and loneliness, and positive correlations with resilience and well-being (Capanna et al., 2013; Lee et al., 2001; Xu et al., 2024; Yang et al., 2025). The SCS-R is of very high internal consistency in the different cultural adaptations that were tested, including those done with Italian, Indonesian, Chinese, and Argentinean samples, where the Cronbach's alpha coefficients were between .88 and .94 (Bagaskara & Widyastuti, 2023; Capanna et al., 2013; Morán et al., 2022; Xu et al., 2024; Yang et al., 2025).

3.3. Procedures

In the Indonesian context, the process of adapting and validating the Social Connectivity Scale for Indonesian undergraduates was carried out in a very thorough manner, as shown in Figure 1, subdivided into six relatively systematic stages to provide maximal conceptual equivalence between the source and adapted versions. The first stage was the forward translation by two independent translators fluent in both English and Indonesian who had lived in an English-speaking country for at least 2 years (Beaton et al., 2000). Following this was the synthesis stage aimed at reaching a consensus between the two translations. Next was the back-translation stage, conducted by two other translators to verify content accuracy, followed by a second synthesis stage to reach agreement between the two back-translators, and a final stage of expert review. This expert review consisted of linguistic scrutiny and assessment of the selected Content Validity Index (CVI) to measure the relevance, clarity, simplicity, and ambiguity of the items (Sperber, 2004; Yaghmaie, 2003).

Finally, a pilot test was conducted with 349 undergraduate informants, including cognitive interviews with 10 additional students using verbal probes. Validation means the standards of the American Educational Research Association (AERA, 2014), reflecting content validity of tests as judged by a Content Validation Panel that used the Item-CVI (I-CVI) and the Scale-CVI (S-CVI) (Polit et al., 2007); response process validity, which is examined through cognitive interviews that assess understanding, information retrieval, evaluation, response, and content suitability to understand how people process and respond to items (Ercikan & Pellegrino, 2017; Hubley & Zumbo, 2017; Peterson et al., 2017); and internal structure analysis that uses Confirmatory Factor Analysis (CFA) of a sample of 349 respondents who passed the screening for attention to establish the factor structure of the adapted instrument. Therefore, the present empirical examination employs two qualitative (cognitive interviews) and quantitative (CVI and CFA) approaches to provide insights into the quality

of the adapted measurement tool. The validation is designed to confirm that the instrument has equivalence to the original and would measure the same construct in an Indonesian cultural context.

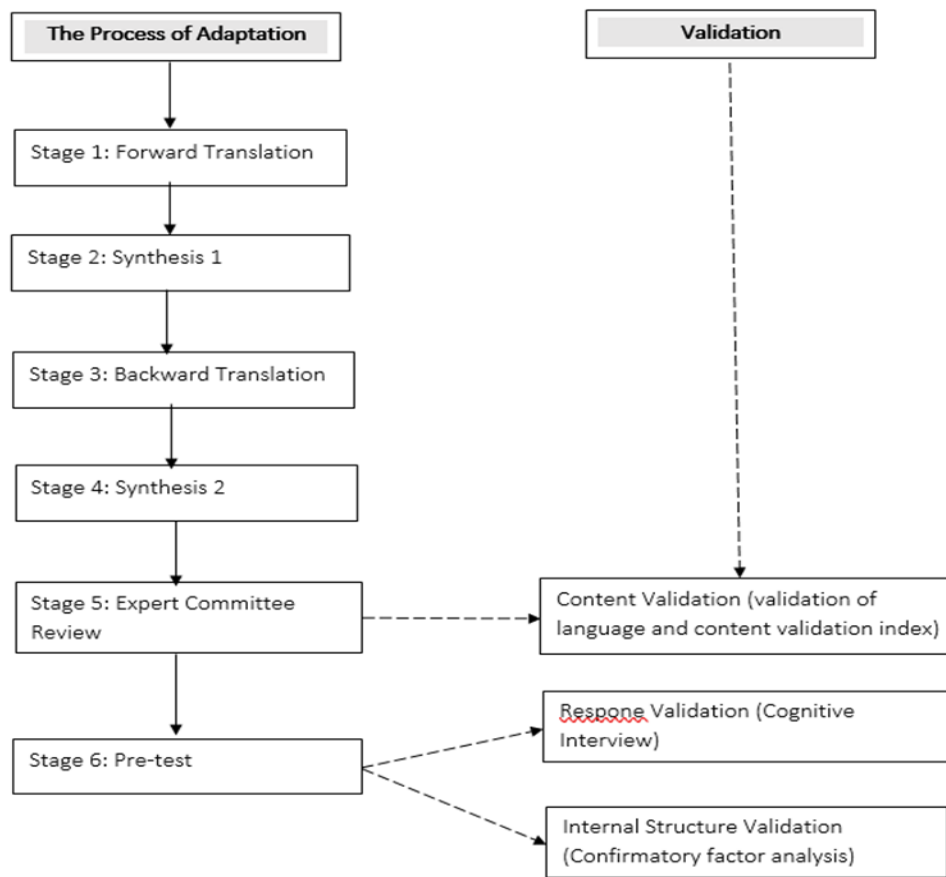


Figure 1. Adaptation process and validation evidence

3.4. Data Analysis

Confirmatory Factor Analysis (CFA) is a good approach to assess the internal structural validity of the measures because it tests whether they actually measure what they are intended to measure (Lewis, 2017). This is what we have done with the initial 8-item social connectedness scale, as well as with the model of the 20-item revised scale; we carried out CFA in JASP 0.19.1.0. Main CFA indicators are factor loadings, which show the extent to which latent factors relate to the manifest variables; values above 0.30 are considered acceptable, while values closer to 0.50 would be ideal (Hair et al., 2010). Factor loadings must be considered statistically significant, and model fit should be evaluated using multiple indices (Ondé & Alvarado, 2020; Steenkamp & Maydeu-Olivares, 2023). Common Structural Equation Modelling (SEM) fit measures include χ^2 , RMSEA, CFI, SRMR, TLI, and GFI (Hair et al., 2010). RMSEA <0.05 indicates a close fit, CFI ≥ 0.90 is acceptable, SRMR <0.08 is a good fit, TLI ≥ 0.95 is a strong fit (0.80–0.90 marginal, <0.80 poor), and GFI >0.90 is acceptable, the same as R^2 in regression (Lu et al., 2011). Although χ^2 quantifies the discrepancy between observed and expected covariances, it is large-sample dependent (Bolboacă et al., 2011). The use of these indices as complementary perspectives enables a thorough evaluation of model fit. However, construct reliability, in addition to fit, is of paramount importance; McDonald's omega (ω) is a strong alternative to Cronbach's alpha, less restrictive in terms of assumptions and appropriate for congeneric items with orthogonal errors (Hancock & An, 2020). Omega is more robust to the presence of non-normal data, missing values, and outliers (Zhang & Yuan, 2016), and thus its application in practice is very much applicable in the assurance of internal consistency of psychometric instruments in the context of research that is not perfect.

4. Results

4.1. Content Validity

The assessment of instrument equivalence includes two main issues: the first one is comparability, which means the alignment of meaning, structure, and context in such a way that cultural bias is not present, and the second one is similarity, which is the consistency of semantics. An expert committee was responsible for the evaluation, and one of the steps was determining the mean score for each item. Sperber (2004) states that any item scoring above 3 on a 1–7 scale must be rewritten. The analysis revealed that all items achieved comparability and similarity indices ranging from 1 to 2, well below the threshold of 4, thereby confirming their conceptual and semantic equivalence. Table 3 shows mean scores and ranges for comparability and similarity for both the original and revised social connectedness scales, indicating a high degree of linguistic equivalence.

Table 3. Means and ranges of comparability and similarity

Scale	Comparability		Similarity		Attention required items
	Total Mean	Range	Total Mean	Range	
Social Connectedness Scale Original	1.025	1-1.5	1.025	1-1.5	-
Social Connectedness Scale-Revised	1.025	1-1.5	1.05	1-1.5	-

An item is considered good if it has an I-CVI ≥ 0.78 , while the S-CVI score is considered good if it is ≥ 0.90 (Polit et al., 2007). The results of the Expert Committee's assessment of the Social Connectedness Scale in terms of relevance, simplicity, clarity, and ambiguity, where the I-CVI has a score of 1, and the S-CVI also has a score of 1, so it can be concluded that this instrument has good content validity. Table 4 shows the results of the item-level content validity index (I-CVI) and the scale-level content validity index (S-CVI) for the original and the revised social connectedness scale, confirming the excellent content validity.

Table 4. I-CVI and S-CVI analysis results

Measurement Tools	Units	Relevance	* Clarity	* Simplicity	* Ambiguity
Social Connectedness Scale Original	I-CVI	1	usable items	1	usable items
	S-CVI	1	Good	1	Good
Social Connectedness Scale Revised (SCS-R)	I-CVI	1	usable items	1	usable items
	S-CVI	1	Good	1	Good

* Description

4.2. Response Validity

According to Peterson et al. (2017), Cognitive interviewing does not rely on quantitative metrics or fixed thresholds to determine whether an instrument is well understood; rather, it assesses the extent to which respondents' interpretations align with the intended meaning of each item. The analysis explores respondents' cognitive processes – namely, comprehension, retrieval, judgement, and response – and compares these with the documented item intent, as illustrated in Table 5. Thus,

the conclusion that the instrument is understood is drawn as validity evidence based on content and response processes, which is more closely related to face validity than to statistical criteria.

Table 5. Summary of results from the cognitive verbal probes interview

Domain	Findings	Relevant Quotes
Understanding	Most participants understood the social connectedness items, although some terms initially confused them.	"I think it is safe because in some or even all of the items I can evaluate myself" (participant 1). "When it comes ... it is still very relevant" (participant 3).
Retrieval	Participants were able to recall personal experiences related to social connections, whether at home, in boarding houses, or on campus.	"At the boarding house... we share tasks, for example, my sister cooks and I do the laundry" (participant 8). "In the boarding house... if I see a friend cleaning, I usually help" (participant 4).
Judgment	Some confusion arose with reverse-coded items, but participants were still able to provide answers.	"Item number 2 and 18... feel almost the same" (participant 10). "The questions are almost similar, as if trying to trick us" (participant 9).
Response	Response options were considered clear, though some mentioned potential bias when similar items appeared.	"The answer choices are easy to understand" (participant 1). "I felt comfortable... I could choose the middle position" (participant 6). "The long response range was a bit confusing at first, but still understandable" (participant 5).
Adequacy of Content	The scale was considered comprehensive, though certain terms were interpreted differently. Items using the word " <i>terlibat</i> " were found easier to understand as " <i>berpartisipasi</i> " (to participate).	"At first I thought <i>terlibat</i> was too general, but if interpreted as participating in community activities, it makes more sense" (participant 1). "If understood as being actively involved, <i>berpartisipasi</i> is more precise than <i>terlibat</i> " (partisipan 2).
Informed Consent	Most participants preferred the shorter version with key points highlighted in bold.	"The more to-the-point version is easier... because it is simpler" (participant 1). "I prefer the short version... simple and straightforward" (participant 2). "It is more comfortable to read... feels more fitting" (participant 3). "If it is too long, it will most likely not be read" (participant 5). "I prefer the second version (the simple one) ... shorter" (participant 6). "The second one is easier and simpler" (participant 7). "More concise... with the important parts in bold" (participant 4).

4.3. Internal Structural Validity

Confirmatory Factor Analysis (CFA) was used to assess the instrument's internal structural validity. CFA confirmed that the indicators properly represent the latent construct that is being studied. The analysis generates empirical evidence about the model fit, factor loadings, and reliability, and thus supports the instrument's validity and consistency as a measurement tool.

4.3.1. Analysis of the original social connectedness scale (SCS), 8 items

The correlation analysis illustrated in Figure 2 demonstrates a clear positive relationship for each item, with their mean scores being between 3.83 and 4.86 and standard deviations of 1.19 and 1.55. These scores imply that the respondents had quite high perception levels, while the data were of moderate variability. The highest correlations are found between Item 6 and Item 15 ($r = 0.517$), Item 7 and Item 6 ($r = 0.516$), and Item 18 and Item 11 ($r = 0.475$), which means that these pairs of items are likely to be representing closely related facets of the underlying construct. In contrast, Item 13 shows the weakest correlation with Item 6 ($r = 0.198$) and Item 20 ($r = 0.237$), which points to a more narrowly defined content area. Correlation is significant at the 0.01 level (2-tailed), meaning that the associations that were observed are all statistically meaningful. This evidence implies that the measurement tool has a high level of internal consistency, and it is likely that the respondents agreed on the majority of the items, thus supporting the assumption of unidimensionality. The significant mean scores and moderate SDs point to the fact that the perception among participants was pretty much the same. The results match the theoretical position that inter-item consistency is a fundamental factor for the reliability and validity of latent construct measurement (Hair et al., 2014).

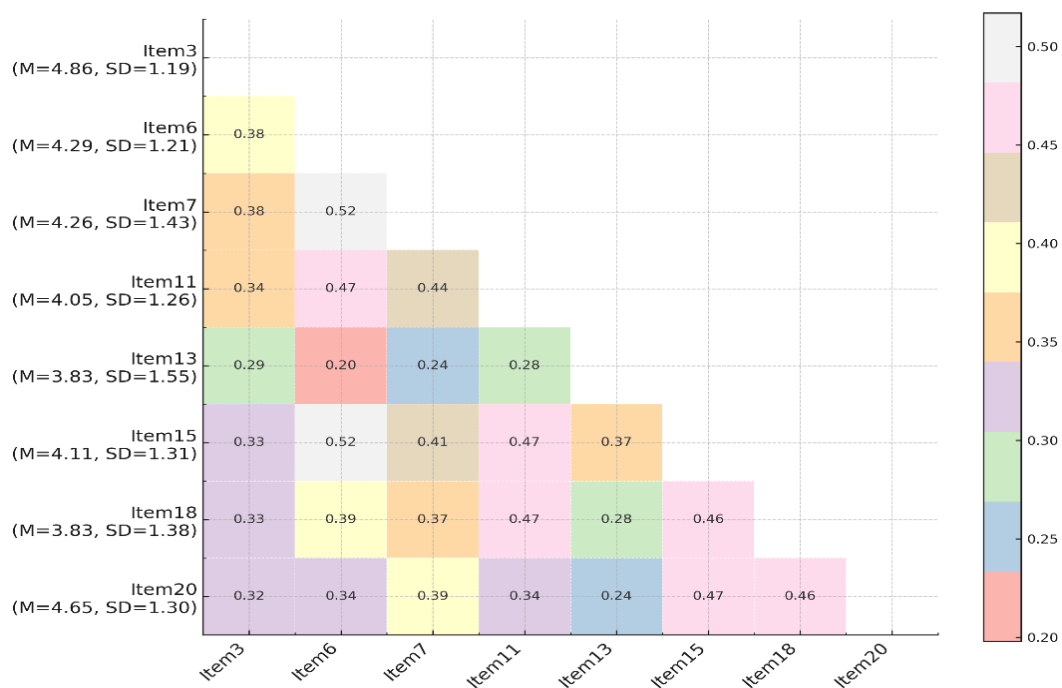


Figure 2. Results of the inter-correlation between items SCS, mean, and standard deviations (8 items)

The analysis demonstrates that all indicators exhibit load factors above the threshold of 0.40 and are statistically significant at $p < 0.001$, with relatively small standard errors (0.062–0.086) indicating stable estimates, as detailed in Table 6. The indicator with the strongest contribution is the statement “Saya mendapati diri saya kehilangan rasa terhubung dengan masyarakat” (loading factor 0.719), while the weakest contribution is reflected in the statement “Saya memiliki sedikit rasa kebersamaan dengan teman-teman saya” (0.419).

Table 6. P-value and loading factors of the original 8-item Social Connectedness Scale (SCS), 8 items

Item code	Indicator	Std. Error	P value	Loading factors
3	Bahkan saat bersama teman-teman, saya tidak merasakan adanya persaudaraan	0.064	< .001	0.528
6	Saya merasa tidak terhubung dengan lingkungan di sekitar saya.	0.062	< .001	0.68
7	Bahkan di saat bersama dengan orang-orang yang saya kenal, saya tidak merasa benar-benar menjadi bagian dari mereka.	0.074	< .001	0.645
11	Saya merasa kurang akrab dengan orang-orang sekitar	0.065	< .001	0.667
13	Saya memiliki sedikit rasa kebersamaan dengan teman-teman saya	0.086	< .001	0.419
15	Saya mendapati diri saya kehilangan rasa terhubung dengan masyarakat	0.066	< .001	0.719
18	Saya tidak merasa memiliki keterhubungan dengan kebanyakan orang yang saya kenal	0.072	< .001	0.648
20	Saya tidak merasa berpartisipasi dengan siapa pun atau kelompok mana pun.	0.069	< .001	0.592

4.3.2. Analysis of the revised social connectedness scale (SCS-R), 20 items

Correlation analysis indicates that inter-item relationships largely fall within the low-to-moderate range, with coefficients spanning from 0.10 to 0.57. As seen in Figure 3, most of these associations are statistically significant at either the $p < 0.05$ or $p < 0.01$ (two-tailed) level. For example, Item 2 ($M = 4.18$, $SD = 0.98$) correlates significantly with Item 4 ($r = 0.46$, $p < 0.01$), reflecting a strong construct linkage. Item 15 ($M = 4.11$, $SD = 1.31$) in a similar manner correlates strongly with Item 6 ($r = 0.52$, $p < 0.01$), thus the internal reliability of the instrument is confirmed even more. On the other hand, weak correlations illustrated by Item 1 ($M = 3.13$, $SD = 1.10$) and Item 9 ($r = 0.07$, non-significant) indicate that the items are somewhat independent. The difference of the mean values (3.13–4.96) and standard deviations (0.87–1.55) highlights the diversity of respondents' views throughout the items. These results suggest that the instrument holds acceptable construct validity in the sense that most of the items are interrelated, though the strengths of the relationships differ. From the theoretical perspective, this result is consistent with Hair and Babin (2019), who maintain that the presence of inter-item correlations supports the idea of latent factor structures and thus strengthens internal validity. High correlations at the $p < 0.01$ level provide support for the reliability of the measure, while those at $p < 0.05$ still play a significant role in the construct understanding.

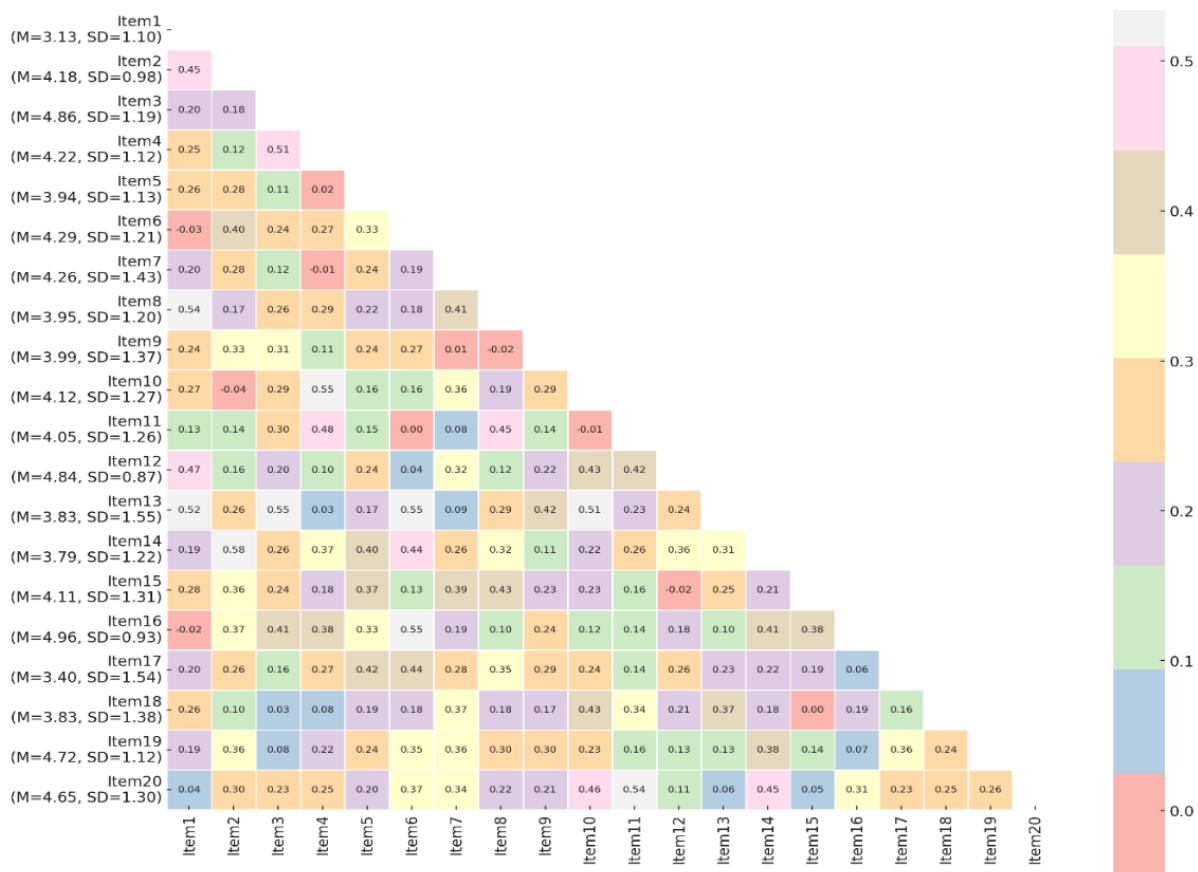


Figure 3. Results of the inter-correlation between items SCS-R, means, and standard deviations (20 items)

The interpretation of Table 7 indicates that the Social Connectedness Scale–Revised (SCS-R) items, which amount to 20, have loading factor values between 0.336 and 0.704. The item with the most significant loading factor is item 15, “Saya mendapati diri saya kehilangan rasa terhubung dengan masyarakat” (0.704), which highlights a substantial contribution to the representation of the construct. On the other hand, item 8, “Saya cenderung melihat orang lain sebagai pribadi yang ramah dan mudah didekati” (0.336), has the lowest loading factor, which implies that its contribution to the overall measurement is weaker. This difference in loading factors among the items means that while the majority of them adequately represent social connectedness, some still need improvement in their explanatory strength. Nevertheless, the consistently observed p-values (< .001) across all 20 items are an undeniable confirmation that the SCS-R is a statistically valid and reliable tool for measuring social connectedness.

Table 7. P-value and loading factor of the Revised Social Connectedness Scale (SCS-R), 20 items

Item code	Indicator	Std. Error	P value	Loading factors
1	Saya merasa nyaman dengan kehadiran orang asing (orang yang tidak dikenal).	0.061	< .001	0.439
2	Saya terhubung selaras dengan lingkungan sekitar saya.	0.051	< .001	0.640
4	Saya bisa membaaur dengan baik di situasi baru.	0.058	< .001	0.642
5	Saya merasa dekat dengan orang lain.	0.059	< .001	0.613
8	Saya cenderung melihat orang lain sebagai pribadi yang ramah dan mudah didekati	0.068	< .001	0.336

Item code	Indicator	Std. Error	P value	Loading factors
10	Saya merasa dipahami oleh orang-orang yang saya kenal	0.072	< .001	0.367
12	Saya bisa memahami teman sebaya saya.	0.049	< .001	0.426
14	Menurut saya, Saya adalah orang yang dapat secara aktif terlibat dalam kehidupan orang lain	0.066	< .001	0.501
16	Saya mampu terhubung dengan orang lain	0.048	< .001	0.660
19	Teman-teman saya terasa seperti keluarga	0.06	< .001	0.565
3*	Bahkan saat bersama teman-teman, saya tidak merasakan adanya persaudaraan	0.063	< .001	0.517
6*	Saya merasa tidak terhubung dengan lingkungan di sekitar saya.	0.061	< .001	0.667
7*	Bahkan di saat bersama dengan orang-orang yang saya kenal, saya tidak merasa benar-benar menjadi bagian dari mereka.	0.072	< .001	0.636
9*	Saya merasa bukan bagian dari komunitas.	0.071	< .001	0.583
11*	Saya merasa kurang akrab dengan orang-orang sekitar	0.062	< .001	0.685
13*	Saya memiliki sedikit rasa kebersamaan dengan teman-teman saya	0.085	< .001	0.390
15*	Saya mendapati diri saya kehilangan rasa terhubung dengan masyarakat	0.064	< .001	0.704
17*	Saya melihat diri saya sebagai penyendiri	0.077	< .001	0.656
18*	Saya tidak merasa memiliki keterhubungan dengan kebanyakan orang yang saya kenal	0.069	< .001	0.681
20*	Saya tidak merasa berpartisipasi dengan siapa pun atau kelompok mana pun.	0.066	< .001	0.617

*Reverse item (3, 6, 7, 9, 11, 13, 15, 17, 18, 20)

The CFA results indicate that the 8-item SCS model (Analysis 1) has a good fit for most indices: CFI = 0.956, TLI = 0.939, SRMR = 0.035, and GFI = 0.995, with a minimum factor loading of 0.419. In contrast, the 20-item SCS-R model (Analysis 2) showed only marginal fit, with CFI (0.866) and TLI (0.850). However, its reliability was higher than that of the original version ($\alpha = 0.879$; $\omega = 0.904$) ($\alpha = 0.823$; $\omega = 0.824$). Both models recorded identical RMSEA values (0.069), indicating an adequate fit. These results imply that the SCS exhibits greater model fit stability, whereas the SCS-R demonstrates stronger internal consistency, as illustrated in Figure 4. This outcome aligns with the literature, which emphasises that instrument evaluation requires a balance between model fit and reliability. As highlighted by Alfuqaha et al. (2022) and McNeish et al. (2018), marginal fit indices may still be considered acceptable if high reliability supports the instrument's internal coherence. Furthermore, the results reinforce Lee and Robbins (1995, 2000) perspective that social connectedness is a complex construct that may be appropriately captured by either the shorter or revised version, depending on the research context.

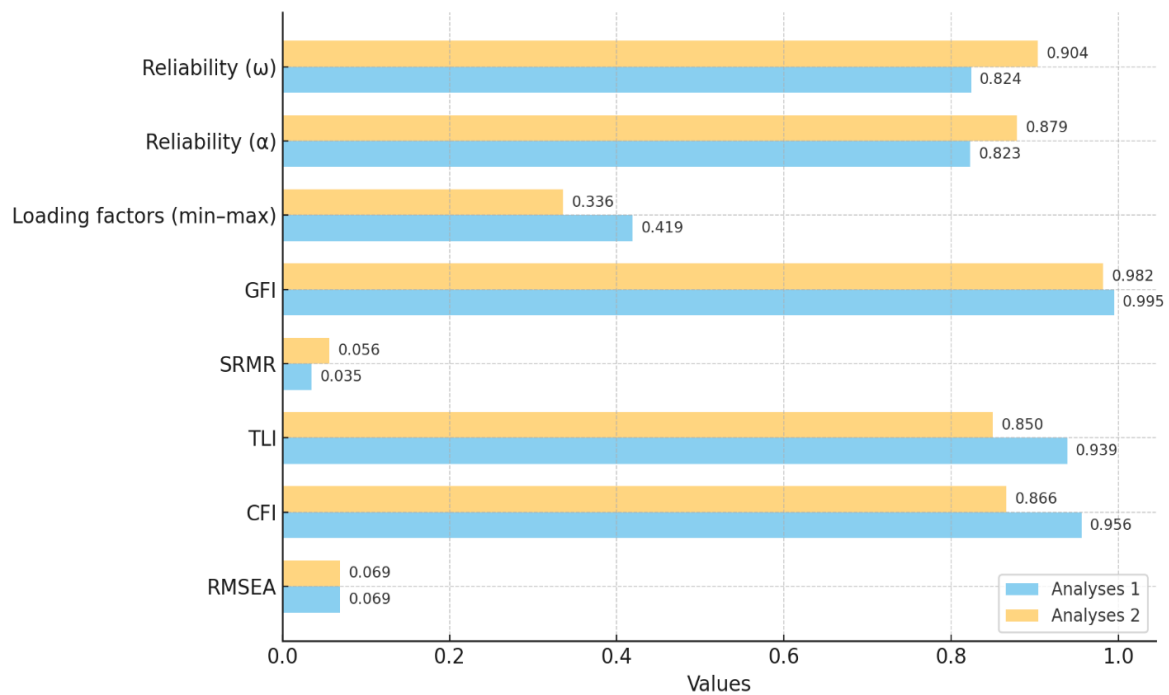


Figure 4. A comparison of the index fit indicator and the reliability of the Social Connectedness Scale, which has eight original items and 20 revised items

5. Discussion

The present study demonstrated that the adaptation and validation of the Social Connectedness Scale (SCS) and its revised version (SCS-R) among Indonesian university students yielded both instruments with strong psychometric properties. The SCS had better model fit indices, while the SCS-R had higher internal consistency. This is in line with the previous cross-cultural validation studies, in which the SCS-R has always been reliable with high internal consistency (Cronbach's α ranging from .88 to .94) in different populations, including Italians (Capanna et al., 2013), Argentines (Morán et al., 2022), and the Chinese (Ran et al., 2025; Xu et al., 2024; Yang et al., 2025). Moreover, the unidimensional structure attested in this research was in agreement with both the original scale development (Lee et al., 2001) and later adaptations (Bagaskara & Widyastuti, 2023; Capanna et al., 2013), even though some studies have proposed the existence of multidimensionality in certain contexts (Carroll et al., 2017; Nabulsi et al., 2023).

The adaptation procedure in this research followed rigorous cross-cultural criteria, including forward translations, expert reviews, and cognitive interviews, in accordance with established guidelines (Beaton et al., 2000; Sperber, 2004). The changes, such as replacing 'terlibat' with 'berpartisipasi', were intended to clarify the cultural aspect without altering the meaning of the construct. The cognitive interviews indicated a good general understanding of the items. However, some reverse-coded items remained confusing for certain subjects—similar to the limitations of the original SCS, where the use of only negatively worded items occasionally caused response bias (Morán et al., 2022; Özdoğru et al., 2025). The internal structure analysis provided additional evidence for the scale's unidimensionality, with higher loadings for the disconnection-related items and lower loadings for the positively phrased items, consistent with prior cross-cultural studies (Capanna et al., 2013). Demographic factors did not show any significant relationships with the scale scores, which indicates that the scale is applicable equally in all the diverse student subgroups; this finding corresponds with the recent research that has shown the scale's applicability across many demographic groups (Bariyyah et al., 2025; Nankani & Vijayan, 2024).

A comparative analysis between the present adaptation and that of Bagaskara and Widyastuti (2023) reveals notable methodological distinctions. Bagaskara and Widyastuti used formal expressions throughout the adaptation, relying entirely on the phrase 'saya merasa', which is very close to the original English version. On the other hand, the present undergraduate adaptation went for informal expressions. It even included contextual clarification like the mention of 'orang yang tidak dikenal' in item 1, simplifying the phrase to 'bisa membaur' (in item 4), and referring to 'bukan bagian dari komunitas' (in item 9). Moreover, a few more differences in meaning were quite subtle; for instance, 'memahami' changed to 'terhubung' in item 12. Such different approaches signify that, while Bagaskara's adaptation was aimed primarily at preserving the construct, the present one was mainly directed towards the younger participants, making it easier for them to access and recognize. The above-mentioned comparative findings underscore the importance of striking an appropriate balance between linguistic fidelity and contextual relevance in cross-cultural adaptations. This point has broader implications for scale-adaptation methodology, particularly in collectivist cultural contexts, as social connectedness may be reflected differently from that in individualistic societies (Hare Duke et al., 2019).

The unique contribution of the present study lies in providing validated Indonesian versions of the SCS and SCS-R, specifically tailored for undergraduate populations, thereby broadening their use beyond Western and individualistic higher education settings. The new adaptation, which primarily focused on adult populations (Capanna et al., 2013; Morán et al., 2022), does not address the developmental and contextual issues of emerging adulthood in Indonesian university life, but instead presents them as isolated, unlike in the previous study. The validity and reliability exhibited by both scales make it much easier for researchers and practitioners to evaluate social connectedness, a concept that is gaining recognition as a protective factor against depression, anxiety, and loneliness, and is also positively correlated with resilience and well-being (Capanna et al., 2013; Tüzün et al., 2022; Xu et al., 2024; Yang et al., 2025). However, some limitations need to be acknowledged, such as the use of convenience sampling and the lack of longitudinal validation. Future studies should not only address these shortcomings but also include assessments of stability over time, analyses of predictive validity, and applications across broader Southeast Asian contexts. Such efforts would not only establish the cultural equivalence of the instruments but also provide insights into intervention strategies to improve the well-being of students in collectivist educational settings.

6. Conclusion

This paper explored the systematic adaptation and validation of the Social Connectedness Scale (SCS) and its revised version (SCS-R) for Indonesian university students. The results showed that both scales had excellent psychometric properties, though the SCS had better model fit than the SCS-R, which had better internal consistency. The procedure for adaptation took a very cross-cultural approach and involved the major steps: the text was adapted-translated for semantic and conceptual equivalence, "with as negligible local linguistic polish as possible to guarantee cultural clarity." This finding is important because it demonstrates that social connectedness can be measured very reliably in academia, even in a collectivistic context, and, at the same time, it provides new insights into item-level differences, the impact of demographic variables on the instrument's eligibility, and the trade-offs between parsimony and reliability. This study, while asserting the construct's unidimensionality across contexts and within the global literature, not only contributes to psychometric knowledge development but also provides culturally bound modifications.

7. Suggestion

The importance of these research results goes beyond merely acquiring the knowledge; they practically imply higher education institutions and government policies. The signs of authentic social connectedness would lead to effective programming and interventions, and, in the end, the

establishment of organizational structures that promote students' welfare. For policymakers, results like these call for culturally salient measuring instruments as a basis for formulating mental health policy. Limitations include convenience sampling and the absence of longitudinal measures. Future studies should aim for measurement invariance across subgroups, longitudinal validation, and predictive studies linking social connectedness to outcomes in academia and psychosocial functioning. This kind of research will not only fill these gaps. However, it will also take advantage of the upcoming one and strengthen future research in both theoretical frameworks and practice toward better student resilience and integration in collectivist cultures.

Declarations

Author Contributions. Conceptualisation: F.F. and D.R.S.; Methodology: D.R.S. and N.H.Y.; Software: F.F.; Validation: D.R.S. and N.H.Y.; Formal Analysis: F.F. and N.H.Y.; Investigation: F.F. and D.R.S.; Resources: F.F. and N.H.Y.; Data Curation: F.F.; Writing—Original Draft Preparation: F.F.; Writing—Review and Editing: D.R.S. and N.H.Y.; Visualisation: F.F.; Supervision: D.R.S. and N.H.Y.; Project Administration: F.F. All authors have read and agreed to the published version of the manuscript.

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Ethical Approval. Ethical approval for the study was obtained from the research ethics committee of the faculty of psychology at Universitas Airlangga before the commencement of the study.

Data Availability Statement. The data can be obtained on request by contacting the corresponding author and giving a clear reason for the request.

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About the Contributor(s)

Faizah is a Ph.D. Candidate, Department of Doctoral Psychology Program, Universitas Airlangga, Jl. Airlangga No.4-6, Airlangga, Surabaya, East Java 60286, Indonesia. As a Lecturer at the Department of Psychology, Universitas Brawijaya, Malang, East Java 65141, Indonesia. Her research focuses on the educational context, Positive psychology in education, Students with special needs, Diagnostic and assessment in psychology, and the higher education context.

Email: faizah_hermawan@ub.ac.id or faizah-2022@psikologi.unair.ac.id

ORCID: <https://orcid.org/0000-0003-0947-1039>

Dewi Retno Suminar is a Senior Assistant Professor and Lecturer of the Doctoral Psychology Program at Universitas Airlangga, Jl. Airlangga No.4-6, Airlangga, Surabaya, East Java 60286, Indonesia. She is passionate about developmental psychology, the relationship between person and self-development. Dr Dewi Retno Suminar’s research interests are in the theory of mind, child development, and elderly development.

Email: dewi.suminar@psikologi.unair.ac.id

ORCID: <https://orcid.org/0000-0001-5815-4510>

Nono Hery Yoenanto is a Senior Assistant Professor and Lecturer of the Doctoral Psychology Program at Universitas Airlangga, Jl. Airlangga No.4-6, Airlangga, Surabaya, East Java 60286, Indonesia. He is passionate about educational psychology, the psychology of gifted children, and educational program management and evaluation. Dr Nono Hery Yoenanto’s research interests are in gifted education and classroom learning facilitation.

Email: nono.hery@psikologi.unair.ac.id

ORCID: <https://orcid.org/0000-0003-1199-6053>

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