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Measuring ethnocultural empathy in Japanese undergraduates: the validity and reliability of the Japanese version of the scale of ethnocultural empathy

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Introduction: The purpose of this study was to adapt the English version of the Scale of Ethnocultural Empathy (SEE) for use in the Japanese context and to determine the validity and reliability of the adapted version to allow for the measurement of cultural empathy and promote further research into this concept in Japan. The SEE is a widely-used measure of cultural empathy which has been adapted for use in a number of cultures (e.g., Turkish, Swedish, Spanish), however the validity and reliability of this scale in the Japanese context has yet to be determined. While recognition of the importance of learner empathy in intercultural interactions has increased, at present, a validated scale to measure ethnocultural empathy has not been presented.

Methods: Responses from 777 Japanese undergraduate students were used to determine the construct validity of the SEE using exploratory and confirmatory factor analysis, as well as to assess the convergent validity of the scale using the Interpersonal Reactivity Index (IRI). Reliability was evaluated using Cronbach's alpha and test-retest validity.

Results: Factor analysis revealed two factors underlying the Japanese version of the SEE (SEE_J), explaining 42.1% of variance. The two factors—Empathic Feeling and Expression (EFE_J) and Empathic Awareness and Perspective Taking (EAPT_J)—were moderately correlated. Correlations between the SEE_J, EFE_J and EAPT_J with two subscales of the IRI provided evidence of convergent validity. The SEE_J, EFE_J and EAPT_J displayed sufficient internal and test-retest reliability. Respondents reported significantly higher levels of EFE_J than EAPT_J, and women reported significantly higher SEE_J and EFE_J than men, both of which are similar to the results of past studies using the SEE in other cultural contexts.

Discussion: The validation of the SEE_J allows for the measurement of cultural empathy and further research into this concept in the Japanese context, as well as the development of programs to enhance ethnocultural empathy in areas where Japanese individuals come into contact with individuals from other cultures, such as counseling, healthcare and education.

KEYWORDS

scale of ethnocultural empathy, ethnocultural empathy, validity, reliability, psychometric properties, university students

1 Introduction

As global migration between countries and regions continues to accelerate (OECD, 2023a), societies around the world are becoming increasingly diverse, resulting in frequent professional and informal interactions between individuals and groups that perceive one another as being culturally different. For organizations and corporations, comparative models employing various cultural characteristics have been utilized to facilitate understanding between members of various cultural backgrounds (Murdock, 1967; Hofstede, 1991). However, such models grant minimal consideration to the impact of ingroup/outgroup perception, which research has demonstrated results in individuals experiencing more empathy for individuals in their ingroup and less for individuals perceived as outgroups (Cialdini et al., 1997; Galinsky and Moskowitz, 2000). Acknowledgment of the role of ingroup/outgroup perception has subsequently expanded to other fields, such as healthcare and foreign-language pedagogy, where educators are tasked with preparing learners for interactions with individuals and groups to whom they may perceive as members of outgroups. Consequently, in addition to analyses of cultural differences, nurse/patient interactions, which frequently involve intercultural encounters, may also be understood by analyzing the presence or absence of interlocutor empathy (Reynolds, 2017).

The belief that increased empathy can mitigate attitudes of intolerance and discrimination while positively affecting attitudes of respect and understanding has resulted in studies demonstrating that mediation of subject engagement in cognitive empathy can improve attitudes towards members of perceived outgroups (Batson et al., 1997; Batson et al., 2002) including differing cultural groups (Stephan and Finlay, 1999; Finlay and Stephan, 2000; Vescio et al., 2003). The ability of researchers to both elicit and suppress cognitive and affective empathic responses demonstrates the malleability of subject empathy in cross-cultural situations, indicating the potential pedagogical efficacy of targeting learner empathy for increased awareness and understanding of groups who may be perceived as culturally different (i.e., as outgroups). While evidence suggests that empathy differs between individuals (Davis, 1983) and possibly between sexes (Baron-Cohen, 2020), that empathy can be mediated in subjects indicates the possibility of facilitating interventions to increase empathic ability for improved outcomes in interpersonal interactions. At present, the belief that learner ability to empathize with outgroups can be developed underscores the emergence of empathy-centered pedagogies in the fields of narrative medicine (Kuhnigk et al., 2012; Shankar, 2019; Cambra-Badii et al., 2020) and foreign-language acquisition (Lasa Álvarez, 2017; Chen, 2018), fields in which the outcomes of patient/caregiver interactions and intercultural encounters can be positively impacted by interlocutor ability to engage empathically.

Pedagogical attempts seeking to develop learner empathy towards outgroups necessitate tools capable of accurately measuring learning outcomes. While numerous empathy instruments exist, most focus on measuring subject empathy towards members of their ingroup (Rasoal et al., 2011). Increasingly, there is a need for tools to measure ethnocultural empathy or empathy in intercultural contexts. This is important, as "taking the perspective of a person from a different culture may be more difficult than taking the perspective of someone with the same cultural background" (Rasoal et al., 2011, p. 2). Developed by Wang et al. (2003), the Scale of Ethnocultural Empathy (SEE) represents a measurement tool designed to measure "empathy directed towards members of racial and ethnic groups different from one's own" (p. 222) and tested in a multicultural learning environment (the United States). The present research attempts to validate the SEE in a novel learning environment (undergraduate students at Japanese universities), to consider the applicability of the SEE in societies that are comparatively less multicultural.

1.1 Empathy

Empathy, a fundamental human capacity, emerged as a philosophical topic of interest beginning in the 18th century. Smith (1759), in The Theory of Moral Sentiments, devotes a chapter to the concept of "sympathy," which he characterizes as a human ability to cognitively take other's perspectives and share the feelings of others. In addition to sympathy, philosophical debates also employed the term Einfühlung, which originally referred to an ability to "feel into" works of art, or into aspects of nature (Wispé, 1986), before being expanded, by philosophers such as Vischer (1994) to include considerations of how it is that people are capable of understanding other's mental states.

Present investigations of empathy are primarily psychological in nature, with Rogers (1959) being one of the earliest to define the concept in a modern context, stating that "The state of empathy, or being empathic, is to perceive the internal frame of reference of another with accuracy and with the emotional components and meanings which pertain thereto as if one were the person" (p. 210). From such definitions has emerged a broad understanding that empathy involves both cognitive and affective processes, the former described by Hogan (1969) as "the act of constructing from oneself another person's mental state" (p. 308), and more recently by Goldie (2000) as a "process by which a person centrally imagines the narrative (including the thoughts, feelings, and emotions) of another person" (p. 195). By contrast, affective (i.e., emotional) empathy is defined by Eisenberg and Strayer (1987) as "an emotional response that stems from another's emotional state or condition and that is congruent with the other's emotional state or situation" (p. 5), and by Hoffman (1987) as "an affective response more appropriate to someone else's situation than to one's own" (p. 48). At present, investigations into the phenomenon of empathy are concentrated in the fields of social psychology, developmental psychology, personality psychology, clinical psychology, and, increasingly, neuroscience (Rasoal et al., 2011).

Broad agreement that empathy plays an important role in social interactions (Decety and Moriguchi, 2007) has resulted in various attempts at measurement. In addition to measurements of situational empathy, where empathic response is measured immediately following a specific empathy-eliciting situation, psychological research has endeavored to measure dispositional (i.e., trait) empathy, resulting in multiple self-report instruments including Hogan's (1969) Empathy Scale (EM), the Questionnaire Measure of Emotional Empathy Scale (QMEE; Mehrabian and Epstein, 1972), and The Interpersonal Reactivity Index (IRI; Davis, 1983). However, these instruments, as well as the theoretical models they are based, do not take into consideration social interactions between individuals from different cultures.

1.2 Empathy and culture

The importance and function of empathy in cross-cultural clinical settings has been identified by Ivey et al. (1987). In espousing the concept of cultural empathy, they indicate that the world of the client "requires you to understand not only the concrete individual in front of you, but also how family and culture affect their very being" (Ivey et al., 2007, p. 80). Dyche and Zayas (2001), noting a clinical preoccupation with acquiring cultural knowledge for cross-cultural interactions, stress the need for developing cross-cultural empathy, or "an empathetic response capable of transcending cultural differences" (p. 245) that involves "an attitude of openness with the necessary skill to work successfully across cultures" (p. 246). In addition to attitudes is the ability to engage in ethnic perspective taking, which results in awareness of ethnic biases and discrimination, and which research suggests passes through developmental stages beginning in adolescence (Quintana et al., 1999). The addition of a culturally-specific dimension of empathy has resulted in new models, such as Ridley and Lingle's (1996) multidimensional process model of cultural empathy, in which a communicative process is added to cognitive and affective processes.

Stressing the importance of cultural and ethnic dimensions of empathy, Wang et al. (2003) proposed the concept of ethnocultural empathy, which they describe as "a learned ability and a personal trait" grounded in "theoretical discussions of general and culturally-specific empathy" (p. 222). For the authors, intellectual (i.e., cognitive) empathy is the "ability to understand a racially or ethnically different person's thinking and/or feeling" (p. 222), including the ability to engage in ethnic perspective taking. The empathic emotions (i.e., affective) component is defined as "the degree that one is able to feel the other's emotional condition from the point of view of that person's racial or ethnic culture" (p. 222). Adopting Ridley and Lingle's (1996) communicative process, Wang et al. proposed a communicative empathy component, defining it as one's ability to express cognitive understanding and affective responses towards members of differing ethnic groups.

Incorporating their conception of ethnocultural empathy, Wang et al. (2003) developed the Scale of Ethnocultural Empathy (SEE). The scale comprises four subscales: (1) Empathic Feeling and Expression, with 15 items and expressing concern about communicating discriminating or prejudicial attitudes as well as a focus on emotion or affective responses; (2) Empathic Perspective Taking, seven items, which concern efforts to understand experiences and emotions by taking the other's point of view; (3) Accepting Cultural Differences, with four items concerned with understanding and accepting the validity of other's cultural traditions; and (4) Empathic Awareness, whose four items focus on awareness or knowledge of the experiences of other groups. Norms for the scale overall were M = 4.3 (SD = 0.71), and for the subscales were 4.5 (SD = 0.85), 3.7 (SD = 1.1), 4.8 (SD = 0.88), and 4.7 (SD = 0.89), respectively. Furthermore, Wang et al. found differences in ethnocultural empathy between genders, with women scoring significantly higher than men on the SEE total, Empathic Feeling and Expression, Accepting Cultural Differences, and Empathic Awareness, however scores between genders did not differ on Empathic Perspective Taking. In addition to the English-language version, Swedish (Rasoal et al., 2011), Turkish (Özdikmenli-Demir and Demir, 2014), and Spanish (Albar et al., 2015) versions of the SEE have been developed.

1.3 The Japanese context

Compared with Japan, all countries in which the SEE was previously administered represent societies with high levels of cultural and ethnic diversity. Beginning in the 1970s, Sweden embarked on immigration policies seeking to support the ethnic identities of newcomers (Borevi, 2014), resulting in a foreign-born population in excess of 20% (OECD, 2023b). For its part, Spain, with a foreign-born population of over 15% (OECD, 2023c), has historically been one of Western Europe's more ethnically diverse regions, ranking near the top in ethnic fractionalization among Western nations at the beginning of the 21st Century (Fearon, 2003). While Turkey's foreign-born population remains relatively small, that only 66.7% of subjects in Özdikmenli-Demir and Demir's validation study self-identified as ethnically Turkish indicates the diverse nature of Turkish society.

Amongst non-Japanese researchers, there has been a strong tendency to depict Japanese society as homogenous, as typified by Reischauer and Jansen (1995) who contend that "the Japanese today are the most thoroughly unified and culturally homogeneous large bloc of people in the world" (p. 33). This view is representative of a current of Orientalist discourse that characterizes the Japanese as a unified group with a strong emphasis on harmony (Kubota, 1999). In turn, this narrative has found affirmation within Japanese society in the form of cultural nationalistic arguments commonly referred to as ninhonjinron (theories of the Japanese), a body of literature comprised of over 1,000 book titles (Befu and Manabe, 2018), the content of which stress Japanese uniqueness in relation to both Western and non-Western cultures (Vogel, 1979; Dale, 1986; Befu, 2002). While academic investigation has identified Korean, Chinese and Ainu minorities in Japan (Siddle, 2012; Weiner, 2015; Hicks, 2021), the influence of nihonjinron has been linked to popular attitudes (1) rejecting non-Japanese ability to comprehend Japanese culture, and (2) rejecting non-Japanese ability to assimilate into Japanese society (Befu and Manabe, 2018). In addition, Japanese language-in-education policies have been identified as reinforcing an "us/them mode of thinking" (McVeigh, 2002, p 149), and functioning as a vehicle through which Japanese speakers of English learn to communicate nationalistic perspectives of Japan to non-Japanese speakers (Liddicoat, 2007). Unsurprisingly, Japanese learners have been associated with pronounced attitudes of ethnocentricm (Neuliep et al., 2001; Hinenoya and Gatbonton, 2000) compared with other groups (e.g., Americans).

Recognition of cultural diversity in Japan has also lagged other developed countries, with the official recognition of the Ainu in 1997 (Okada, 2012) representing an isolated challenge to the conception of Japanese ethnic homogeneity. Recent immigration reforms notwithstanding, as recent as 2018 the ruling Liberal Democratic Party (LDP) officially stated that changes in immigration control do not represent the introduction of an official immigration policy (Kamiyoshi, 2020). Conversely, the Japanese approach to newcomers has involved their incorporation as permanent foreigners (Kashiwazaki, 2013). Increases in the number of resident foreigners have, rather than sparking a debate over multiculturalism, coincided with national politics dominated by the LDP under Shinzo Abe (in office 2012–2020), whose revisionist policies aimed at the creation of an increasingly ethno-nationalist identity have been variously critiqued (Kolmas, 2018; Tamaki, 2019; Nakahara, 2021).

Within this cultural context, the percentage of foreigners residing in Japan has been steadily increasing (Japan Times, 2023), currently

comprising roughly 2.4% of the population. However, as zainichi (ethnic Korean residents) born in Japan are counted as foreign, the percentage of foreign-born residents is actually lower. While major urban centers (e.g., Tokyo, Osaka, Nagoya) are generally more diverse, foreign populations in more rural prefectures tend to be smaller, as is the case in the city where this research was conducted (Kumamoto City, 0.98%; Kumamoto International Foundation, 2023).

The objective of this study was to adapt the English version of the SEE for use in the Japanese context and to determine the validity and reliability of the adapted version of the SEE in a sample of students attending university in a primarily monocultural learning environment (i.e., a mid-sized Japanese city in Japan with few foreign-born residents). Adapting the SEE will allow for the measurement of cultural empathy and further research into this concept in the Japanese context, as well as the development of programs to enhance ethnocultural empathy in areas where Japanese individuals come into contact with individuals from other cultures, such as counseling, healthcare and education. The adaptation of the scale, including its translation, item analysis, determining its content validity (i.e., exploratory and confirmatory factor analysis) and internal reliability, is the focus of Study 1. In Study 2, the convergent validity of the adapted scale and its test–retest reliability were examined, as well as the cultural contact experience of the respondents.

2 Study 1: adaptation of the SEE to the Japanese context

2.1 Methods

2.1.1 Instrument: the scale of ethnocultural empathy

The SEE (Wang et al., 2003) employs 31 items based on a 6-point Likert scale (1 = strongly disagree that it describes me to 6 = strongly agree that it describes me). The instrument was found to comprise four subscales: Empathic Feeling and Expression (15 items); Empathic Perspective Taking (7 items); Accepting Cultural Differences (5 items); Empathic Awareness (4 items). The scale as a whole displayed good reliability ($\alpha = 0.91$), as did the Empathic Feeling and Expression subscale (0.90), with the other three subscales showing less but still sufficient reliability (Empathic Perspective Taking = 0.79; Accepting Cultural Differences = 0.71; Empathic Awareness = 0.74).

The first step in adapting the SEE to the Japanese context was the translation and back-translation of the instrument following the International Test Commission's (2017) guidelines. The scale was translated into Japanese by the authors in collaboration with a Japanese colleague with experience in testing. This was then back-translated into English by two native English-speaking professors fluent in Japanese. The back-translated versions were compared to the original English version and a few minor inconsistencies were identified and resolved. The Japanese version of the scale is included in the Appendix.

2.1.2 Participants and data collection

Data was collected from students attending three universities in southwestern Japan. There were 626 respondents, 241 male (38.5%), 378 female (60.4%), 7 who identified as other or declined to answer (1.9%). The age of respondents ranged from 18 to 23, with an average age of 18.83 (SD = 0.957).

Responses were collected during May of 2023. The survey was administered through the Google Forms platform, and participants took the survey in their English classes. Participants were informed that participation was voluntary and that the survey was not related to their class evaluation. This information was repeated in the survey form and informed consent was obtained using a question on the survey form to indicate respondents' consent for their data to be used in the study. Among the initial total of 626 respondents, 17 declined to have their data included in the study and so were removed, leaving 609 responses used in the analysis outlined below. Permission to conduct this study was obtained from the review boards of all three universities where data was collected.

2.1.3 Data analysis

Before carrying out factor analysis, the data was screened to identify outliers. The univariate and multivariate normality as well as the linearity of the data was also determined. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) was employed to assess the suitability of the data for use in factor analysis.

Initially, the factor structure of the SEE (Wang et al., 2003) was tested with confirmatory factor analysis (CFA) using AMOS (v28) and maximum likelihood estimation. To account for multivariate non-normality, bootstrapping was used to estimate model parameters. Following the recommendations of Hair et al. (2019), a range of fit indices were used to determine model fit, in addition to the chi-square statistic ($\chi 2$). Two incremental indices, the Tucker-Lewis Index (TLI) and the Comparative Fit Index (CFI), as well as two absolute indices, the Standard Root Mean Square Residual (SRMR), and the Root Mean Square Residual (RMSEA) with 95% confidence intervals were employed. The cut-off values employed to assess the degree of model fit were taken from Hair et al.'s (2019) guidelines based on model complexity and sample size and were as follows: TLI > 0.94; CFI > 0.94; SRMR <0.08; RMSEA <0.07.

To determine the structure of the Japanese version of the SEE, JASP (v17) was used to conduct exploratory factor analysis (EFA), using principal component analysis (PCA) with promax rotation. Item-total correlations were calculated prior to the EFA and items with corrected item-total correlations (Zijlmans et al., 2019) less than 0.3 were removed from the analysis (Field, 2018). Parallel analysis and inspection of the scree-plot were used to determine the number of factors to retain. Items loading at <0.40 on any factor were removed from the analysis, as well as cross-loading items with a variance ratio of <1.5 (Hair et al., 2019). The resulting factor solution was tested using CFA, and the reliability of the scale and its subscales was determined using Cronbach alpha with 95% confidence intervals ($\alpha > 0.7$; Hair et al., 2019). Correlations between the factors were calculated using Spearman's rho. Scale scores, and average scale scores (scale score/number of items), were calculated. Scores on subscales were compared using the Wilcoxon Signed Rank test. Differences in ethnocultural empathy by gender were examined using the Mann–Whitney U test.

2.2 Results

2.2.1 Data screening

Three multivariate outliers (ratio of Mahalanobis distance and degrees of freedom >3.5; Hair et al., 2019) were found and removed from the data set, leaving 606 responses to be analyzed. Scatterplots

were used to determine the linearity of the data set, with no non-linear relationships found. Inspection of Q-Q plots and one-sample Kolmorogov-Smirnov tests revealed non-normal distribution in the scores on most items. Mardia's coefficient was 190.73, indicating a degree of multivariate non-normality in the data. One item (Item 10) displayed a degree of kurtosis (> 7), indicating a serious departure from normality, and this item was removed from the analysis (Byrne, 2016). Since larger sample sizes (> 200) can limit the impact of non-normality in factor analysis (Hair et al., 2019), it was considered reasonable to conduct the CFA using maximum likelihood estimation with bootstrapping. The suitability of the data set for factor analysis was indicated by a KMO value of 0.865.

2.2.2 Factor structure of the Japanese version of the SEE

The four-factor model of the SEE from Wang et al. (2003) was tested using CFA, however, the model showed poor-fit with the scores in this data set: $\chi 2$ [399, $N = 606$] = 1297.893, $p < 0.001$, TLI = 0.739, CFI = 0.761, SRMR = 0.0628, and RMSEA = 0.061 (95% CI 0.057–0.065). The sample was then randomly split into two, with sample 1 ($n = 302$) used in EFA to determine the factor structure of the Japanese version of the SEE, and sample 2 ($n = 304$) used in CFA to test the results of the EFA.

As the first step in the EFA, item-total correlations for each item were calculated, revealing that 11 items were lower than r = 0.30 (items 1, 2, 5, 7, 18, 24, 27, 28, 29, 30, and 31). Because of the low correlation of these items and the other items on the SEE, they were eliminated from the subsequent factor analysis (Field, 2018; Zijlmans et al., 2019).

Parallel analysis and the scree plot both indicated that remaining items formed two factors (Figure 1). In the initial PCA, Items 8, 16, and 17 did not load on either factor and were removed. Item 23 cross-loaded on both factors items with a variance ratio of 1.3, and was also removed. The resulting solution comprised two factors with simple structure, explaining 42.1% of the variance.

This solution was tested using CFA, and initially showed less than ideal fit (Table 1). Item 21 was removed due to low loading (0.31) on the second factor. The model was also inspected for areas of strain and three items (items 3, 11, and 26) were removed in a stepwise fashion as a result. This revised model was tested and showed a good degree of fit: $\chi 2$ [43, $N = 304$] = 76.885, $p = 0.001$, TLI = 0.943, CFI = 0.965, SRMR = 0.0441, and RMSEA = 0.051 (95% CI 0.032–0.069).

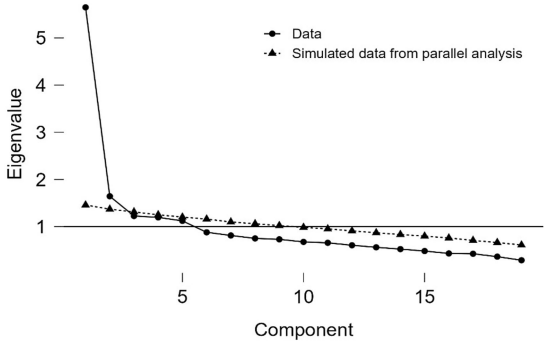

FIGURE 1
Scree plot of the Japanese version of the scale of ethnocultural empathy (SEE_J) including results of parallel analysis.

The first factor comprised items from Wang et al.'s (2003) Empathic Feeling and Expression subscale, and thus it was also named Empathic Feeling and Expression (EFE_J; the "J" added to distinguish the Japanese version). The second factor comprised items from both the Empathic Perspective Taking and the Empathic Awareness subscales on the original SEE and was named Empathic Awareness and Perspective Taking (EAPT_J; Table 2). Reliability was satisfactory (> 0.7; Hair et al., 2019) for the scale as a whole and for each subscale, with alphas of 0.796, 0.744, and 0.702, respectively (Table 2). The factors were significantly positively correlated, r = 0.435, $p < 0.001$.

After a valid and reliable version of the SEE was determined, scale scores, and average scale scores (scale score/number of items) for the SEE overall and for both subscales were calculated (Table 3). The mean average score on the SEE_J overall was 4.25 (SD = 0.663), the score on the EFE_J subscale was 4.65 (SD = 0.774), and on the EAPT_J subscale the score was 3.78 (SD = 0.807).

Wilcoxon Signed Rank test revealed a significant difference in the scores on the two subscales, z = −18.913, $p < 0.001$, with scores on the EFE_J (Md = 4.67) higher than those on the EAPT_J (Md = 3.80), and a large effect size ($r = 0.54$; Cohen, 1988). Mann–Whitney U tests showed a significant difference between males (Md = 4.09, $n = 227$) and females (Md = 4.36, $n = 374$) on the SEE_J overall, z = −3.605, $p < 0.001$, but with only a small effect size (r = 0.15). There was also a significant difference in scores on the EFE_J subscale (males, Md = 4.50; females, Md = 4.83), z = −5.275, $p < 0.001$, with a slightly larger effect size (r = 0.22). No significant difference was seen between males (Md = 3.80) and females (Md = 3.80) on the EAPT_J subscale, z = −0.885, $p = 0.376$, $r = 0.04$.

3 Study 2: cultural contact experience of participants, convergent validity and test–retest reliability of the SEE_J

3.1 Methods

3.1.1 Participants and data collection

The participants in this study were 168 students attending two universities in southwestern Japan. Among the respondents, 52 were male (31.0%) and 116 were female (69.0%). The age of respondents ranged from 18 to 23, with an average age of 19.12 (SD = 1.178). Responses were collected during April of 2024. The administration of the survey and the procedures for obtaining informed consent were the same as those outlined above for Study 1. Permission to conduct this study was obtained from the review boards of both universities.

A subset of these students ($n = 88$) took part in a second data collection to assess the test–retest reliability of the SEE_J. In this subset, there were 20 male (22.7%) and 68 female (77.3%) respondents, with an average age of 19.19 (SD = 1.312).

3.1.2 Instruments

In order to better understand the range of respondents' intercultural experience, the first section of the survey asked participants to describe their experience of contact with other cultures. Four areas were chosen on the basis of information gathered in previous research with the SEE: experience and length of overseas stay,

TABLE 1 Comparison of results from confirmatory factor analysis.

	SEE (Wang et al., 2003)	Initial two-factor EFA solution	Final CFA model
TLI	0.739	0.864	0.943
CFI	0.761	0.885	0.965
RMSEA	0.061	0.069	0.051
SRMR	0.0628	0.0555	0.0441
χ^2	1297.893	218.431	76.885
p	> 0.001	> 0.001	0.001

SEE = Scale of Ethnocultural Empathy; TLI: Tucker-Lewis index; CFI: Comparative fit index; RMSEA: root mean squared error of approximation; SRMR: standardized root mean square residual; χ2: Chi-square test statistic.

number of foreign friends, number of foreign relatives, and number of classmates of non-Japanese ethnicity or cultural background in high school grade.

The second section of the survey comprised the 11 items of the SEE_J. The reliability of the SEE_J overall, the EFE_J and EAPT subscales for this administration were 0.853, 0.791 and 0.803, respectively, representing improved alpha values over those for Study 1, suggesting that the SEE_J possessed sufficient reliability.

The third section comprised the Interpersonal Reactivity Index (IRI; Davis, 1983), which was used to assess the convergent validity of the SEE_J. The IRI has four subscales which measure several aspects of general empathy. However, following Wang et al. (2003), only two of the subscales, Empathic Concern and Perspective Taking, were used in this study. The IRI was adapted for use in the Japanese context by Himichi et al. (2017), and this version of the IRI was employed in the present study, with a 6-point Likert-type scale (1 = does not describe me well to 6 = describes me very well). The Japanese version of the IRI displayed satisfactory reliability ($\alpha = 0.76$), as did the Empathic Concern (α = 0.77) and Perspective Taking (α = 0.75) subscales. In the present study, Cronbach's α for the Empathic Concern subscale was 0.831, while that for Perspective Taking was 0.777, similar to the values from Wang et al.'s (2003) original study.

3.1.3 Data analysis

Descriptive statistics for responses to the four cultural contact experience questions were calculated, with differences in ethnocultural empathy based on aspects of cultural contact experience examined using the Mann–Whitney U test. Correlations between the SEE_J as whole, the EFE_J and EAPT_J subscales, and the IRI were calculated using Spearman's rho to determine convergent validity. Test–retest reliability was also assessed using Spearman's rho.

3.2 Results

3.2.1 Cultural contact experience

Participants were queried as to the extent of their intercultural contact experience. Subjects indicating that they had no friends of a different race or ethnicity constituted 69%, while only 12.5% responded that they had 5 or more such friends. Concerning the ethnic diversity at their high schools, 74.4% responded that there were no classmates of non-Japanese ethnic or cultural background in their high-school grade. Similarly, 94% of participants indicated that they did not have any family members of non-Japanese ethnic background. Finally, 82.1% of participants responded that they had never traveled outside Japan, with only 1.8% indicating that they had spent more than one year abroad.

With the exception of having non-Japanese relatives (due to the small number of respondents who answered affirmatively), differences in SEE_J total and subscale scores on the basis of cultural contact experience were examined with Mann–Whitney U Tests. Respondents with experience staying overseas showed no significant differences in SEE_J total or subscale scores from those without, nor were there differences between those with non-Japanese students in their high school grade and those without. However, there were significant differences (with Bonferroni correction applied) between respondents with foreign/non-Japanese friendships (Md = 53.5; $n = 52$), and those without such friendships (Md = 51.0, $n = 115$), on the SEE_J, z = −3.179, $p = 0.001$, the EFE_J (with Md = 29.0; without Md = 28.0), z = −2.401, $p = 0.016$, and the EAPT_J (with Md = 21.0; without Md = 19.0), z = −2.786, $p = 0.005$, with effect sizes of a moderate degree, r = 0.25, r = 0.19, and r = 0.22, respectively.

3.2.2 Convergent validity

Correlations between total SEE_J scores, EFE_J and EAPT_J subscale scores and scores on the Empathic Concern and Perspective Taking subscales of the IRI were calculated (Table 4).

Significant correlations of moderate (r = 0.3) to large (r = 0.5; Cohen, 1988) size were found between total SEE_J scores, EFE_J and EAPT_J subscale scores, and scores on the two IRI subscales. These correlations were larger than those found in Wang et al.'s (2003) original study, providing evidence for the convergent validity of the SEE_J and its subscales.

3.2.3 Test–retest reliability

Table 5 shows the means standard deviations and medians for the test–retest administrations of the SEE_J and subscales. The test–retest reliability estimate for the total SEE_J was r = 0.729, while that for the EFE_J was r = 0.708, and for the EAPT_J was r = 0.686, which suggests that scores on the SEE_J and its two subscales are relatively stable.

4 Summary and discussion

With increasing numbers of foreign residents entering Japan to reside in urban and rural environments, there is a need for an instrument to measure ethnocultural empathy to determine the efficacy of curricula targeting empathy in healthcare education and foreign-language learning. The aim of this study was to adapt the English version of the SEE for use in the Japanese context and to assess the psychometric properties of the SEE in a sample of students attending university in a rural region where the percentage of foreign-born residents is relatively low. Differences in scores on the subscales of the SEE and difference in scores between males and females were also examined.

The results from the initial CFA did not substantiate Wang et al.'s (2003) original four-factor solution in the Japanese sample. Consequently, a series of EFAs and CFAs were undertaken to determine the structure underlying the scores. This process revealed a two-factor solution explaining 42.1% of the variance. The two factors

TABLE 2 The Japanese version of the scale of ethnocultural empathy (SEE_J).

	Factor	M	SD	Loading
Item No.	**Empathic feeling and expression (EFE_J; α = 0.744)**	**4.65**	**0.774**	
9	I seek opportunities to speak with individuals of other racial or ethnic backgrounds about their experiences.	4.16	1.270	0.520
12	I share the anger of those who face injustice because of their racial and ethnic backgrounds.	4.86	1.162	0.515
13	When I interact with people from other racial or ethnic backgrounds, I show my appreciation of their cultural norms.	4.75	1.084	0.590
14	I feel supportive of people of other racial and ethnic groups, if I think they are being taken advantage of.	5.03	0.947	0.890
15	I get disturbed when other people experience misfortunes due to their racial or ethnic backgrounds.	4.21	1.113	0.587
22	When I see people who come from a different racial or ethnic background succeed in the public arena, I share their pride.	4.87	1.141	0.484
	Empathic perspective taking and empathic awareness (EAPT_J; α = 0.702)	**3.78**	**0.807**	
4	I know what it feels like to be the only person of a certain race or ethnicity in a group of people.	3.67	1.343	0.508
6	I can relate to the frustration that some people feel about having fewer opportunities due to their racial or ethnic backgrounds.	4.06	1.200	0.550
19	It is easy for me to understand what it would feel like to be a person of another racial or ethnic background other than my own.	3.64	1.149	0.664
20	I can see how other racial or ethnic groups are systematically oppressed in our society.	3.97	1.123	0.663
25	I am aware of how society differentially treats racial or ethnic groups other than my own.	3.53	1.145	0.477

Item numbers are those from Wang et al.'s (2003) version of the SEE. Means and standard deviations of the two subscales are indicated in bold.

TABLE 3 Descriptive statistics and reliability for the SEE_J and subscales.

	Scale		Average		Reliability	
	M	SD	M	SD		95% CI
SEE_J	46.77	7.29	4.25	0.66	0.796	[0.771–0.819]
EFE_J	27.89	4.47	4.65	0.74	0.744	[0.711–0.774]
EAPT_J	18.88	4.03	3.78	0.81	0.702	[0.663–0.738]

SEE_J = Scale of Ethnocultural Empathy (Japanese version); EFE_J = Empathic Feeling and Expression; EAPT_J = Empathic Awareness and Perspective Taking; CI = Confidence Interval.

are moderately positively correlated, and both factors displayed a sufficient degree of reliability, with Cronbach's alpha values in Study 2 substantially higher than those in study 1.

The first factor on the Japanese version of the SEE comprises 6 items relating to emotional experiences, such as anger, pride and support, and communicating with individuals from other ethnic groups (e.g., I get disturbed when other people experience misfortunes dure to their racial or ethnic backgrounds). All six items were from the Empathic Feeling and Expression subscale on the original SEE, and so this factor was named similarly, EFE_J. The second factor consisted of 5 items concerning awareness and understanding of the position of culturally different others (e.g., I am aware of how society treats racial or ethnic groups other than my own.). This factor contained items from both the Empathic Awareness and Empathic Perspective Taking subscales from the original scale, and thus it was named EAPT_J.

Correlation analyses between the SEE_J, EFE_J and EAPT_J and two subscales of a measure of general empathy, the IRI, provide evidence for the convergent validity of the Japanese version of the SEE. Test–retest reliability results suggest that scores on the SEE_J and its two subscales are sufficiently stable.

Respondents scored significantly higher on EFE_J than EAPT_J, with a large effect size. One possibility for this is, that as (Wang et al., 2003) hypothesize, the monocultural experience of the Japanese respondents may have delayed development of empathic perspective taking. Concerning gender differences, females scored higher on the SEE_J overall and on EFE_J, both with small effect sizes. Scores on EAPT_J were similar for both genders, however.

Responses from Study 2 revealed that the majority of respondents have had very little contact experience with individuals from other cultures. Those respondents with foreign friendships reported higher total SEE_J, EFE_J and EAPT_J scores than those without non-Japanese friends, however other cultural contact variables had no significant effect on respondents scores.

The factor structure of the Japanese version of the SEE differs from the original version (Wang et al., 2003), as well as the Swedish (Rasoal et al., 2011), Turkish (Özdikmenli-Demir and Demir, 2014), and Spanish (Albar et al., 2015) versions of the SEE, with the elimination of one subscale, Awareness of Cultural Differences, and the combination of two subscales, Empathic Awareness and Empathic Perspective Taking, into one on the Japanese version. However, the items comprising the two factors of the Japanese version, remain similar to those in Wang et al. (2003). Furthermore, similarities can also be seen in the trends in respondents' scores. In both studies, respondents scored higher on the Empathic Feeling and Expression subscales than on Empathic Awareness or Perspective Taking subscales, and this was also the case in the Swedish and Turkish samples. In addition, females reported higher scores on the SEE overall and the Empathic Feeling and Expression subscales in both this study and Wang et al. (2003). These similarities suggest that despite their differences, both versions of the SEE are tapping similar sources.

One significant reason for the difference in its structure is the number of items that were eliminated from the Japanese version

TABLE 4 Descriptive statistics and intercorrelations between total and subscale scores on the SEE_J and IRI subscale scores.

	M	SD	Md	1	2	3	4	5
1. SEE_J	47.04	8.19	48.0	—	0.863**	0.889**	0.586**	0.454**
2. EFE_J	27.73	4.80	28.0		—	0.557**	0.665**	0.426**
3. EAPT_J	19.31	4.49	19.0			—	0.402**	0.378**
4. Empathic concern (IRI)	31.82	5.17	32.0				—	0.429**
5. Perspective taking (IRI)	20.66	4.27	20.0					—

** $p < 0.01$. $n = 168$; SEE_J = Scale of Ethnocultural Empathy (Japanese version); EFE_J = Empathic Feeling and Expression; EAPT_J = Empathic Awareness and Perspective Taking.

TABLE 5 Test–retest descriptive statistics for total and subscale scores on the SEE_J.

	Test			Retest		
	M	SD	MD	M	SD	MD
SEE_J	47.39	7.68	48.0	46.53	7.65	46.0
EFE_J	28.23	4.29	29.0	26.88	4.51	26.0
EAPT_J	19.16	4.48	19.0	19.66	4.18	20.0

$n = 88$; retest data were collected two weeks after initial test. SEE_J = Scale of Ethnocultural Empathy (Japanese version); EFE_J = Empathic Feeling and Expression; EAPT_J = Empathic Awareness and Perspective Taking.

during the analysis process. The majority of these items were reverse scored items, with all 12 such items on the original version eliminated. The inclusion of reverse scored items on measures, their influence on the psychometric properties of instruments, and respondents' interpretation of these items has been a topic of interest in the past few years both outside (e.g., Carleton et al., 2011; Rodebaugh et al., 2004) and inside Japan (e.g., Nihei et al., 2018). These items have been found to obscure the factor structure of instruments (e.g., Brown, 2003; Nihei et al., 2018; Rodebaugh et al., 2011), to confuse respondents, especially those with less education (Rodebaugh et al., 2011; Weeks et al., 2005), to exhibit weaker correlations with convergent measures than non-reversed items (Nihei et al., 2018; Rodebaugh et al., 2007; Weeks et al., 2005), and even to correlate less strongly with straightforwardly worded items on the same scale (Weeks et al., 2005). Issues with reverse-scored items had a significant impact on the structure of the Japanese version, where many of the reverse scored items correlated only very weakly with the other items on the SEE, failed to load on either factor, or loaded only very weakly.

The absence of these items impacted the structure of the Japanese version of the SEE in two ways. First, the ACD subscale from the original version is composed entirely of reverse scored items, all of which were eliminated from the analysis in this study, leaving only items from three factors in the original version to be analyzed. Second, four of the seven items on the EPT subscale from the original version were reverse scored items, which were also eliminated from the analysis. As a result, items from two subscales on the original scale, EA and EPT, form one factor in the Japanese version. Similarly, Items 4, 6, 20 and 25 (four of the five items on this subscale in the Japanese version) all loaded on a single factor on the Turkish version of the SEE (Özdikmenli-Demir and Demir, 2014) and Items 6, 20 and 25 loaded on a single factor (with Item 4 removed due to low item correlation) on the Swedish version of the SEE (Rasoal et al., 2011). One possible explanation for the tendency of these two aspects to combine in some versions of the SEE while being separate in the original study is the complex nature of the intellectual aspect of ethnocultural empathy which may include both awareness and perspective taking (Wang et al., 2003). Another interesting possibility is that the aspects of intellectual empathy formed two subscales in Wang et al.'s (2003) study due to the influence of a method effect (Brown, 2003) caused by the inclusion of reverse scored items on the EPT subscale rather than the independence of these two aspects. Determining if either these possibilities is correct requires further investigation in both the original and translated versions of the SEE.

Furthermore, the question of cultural plurality—or the lack thereof—bears consideration when comparing results between studies investigating the SEE. As mentioned above, the other contexts to which the SEE has been adapted, America, Sweden, Spain and even Turkey, have higher levels of cultural and ethnic diversity than Japan. Keeping this in mind, it is necessary to consider the potential environmental effects on subjects completing the SEE, as interactions with representatives of non-Japanese cultural backgrounds are rare.

Regarding the relative scarcity of foreigners, in presupposing degrees of intercultural interaction, some SEE items may present challenges for Japanese respondents. Although subjects in the first study were not queried as to their degree of intercultural interaction, considering the small percentage of foreign-born residents in the area in which this study was conducted (Kumamoto City; 0.98%), some subjects may have experienced difficulties in responding to some items. For example, Item 4 presupposes that the subject has experiences as an ethnic or cultural minority, a rare occurrence for typical individuals in Japanese society, while Item 11 assumes that subjects have friends from differing ethnic backgrounds who they have had opportunities to support vocally. Similarly, Items 13 and 21 assume that the subject has had opportunities to experience and praise cultural diversity or advocate against discrimination, situations that may be implausible for some Japanese subjects. Lacking personal experiences, some respondents may have engaged in thought exercises, where they imagined what they would do if they were in situations presupposed by the statements, or they may have responded based on idealized actions in theoretical situations. The fact that Japanese respondents' scores on these particular items tended to be higher than those of Wang et al.'s (2003) American respondents is suggestive of this phenomenon, as overestimating one's ability to react in a hypothetical situation has been noted in past research (e.g., Lee, 1984).

This gives rise to one of the limitations of this study. All of the data was collected using a self-report measure. This allowed for the collection of the large data set necessary for the validation of the Japanese version of the SEE, but as Fan et al. (2006) have reported, it is not the case that self-reported responses necessarily imply similar behaviors. That is to say, respondents who report that they would act with ethnocultural empathy, may not behave that way in actual situations of cross-cultural encounter. In addition, the attitudes of the

sample population examined in this study, university students, may not be representative of those of the Japanese population as a whole. Furthermore, these students were enrolled in universities in a smaller, non-multicultural city. Future research should examine the structure of the SEE in a more heterogeneous sample, including students from a more metropolitan area, such as Tokyo or Osaka, both of which have much higher percentages of foreign residents, as well as individuals of differing ages and occupations. A further objective for future research is the development of additional items for the Japanese version of the SEE so that the instrument can serve as a better measure of ethnocultural empathy in the Japanese context.

5 Conclusion

The purpose of this study was to adapt the English version of the SEE for use in the Japanese context and to determine the validity and reliability of the adapted version to allow for the measurement of cultural empathy and promote further research into this concept in Japan. In addition to its use in research, the Japanese version of the SEE can be very useful in practice. First of all, as Wang et al. (2003) point out, the use of empathy can be effective in altering individuals' attitudes towards cultural outgroups, and the SEE could serve as a tool for measuring these changes. Secondly, as Albar et al. (2015) indicate, the ability to measure ethnocultural empathy allows for the design of courses and programs aimed at increasing individuals' sense of ethnocultural empathy, and the measurement of their effectiveness. Such programs could be of importance in Japan with its relatively homogenous culture, and in particular in less urbanized areas of the country such as that where this study took place.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving humans were approved by Kumamoto Gakuen University Ethics Committee. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

DO: Conceptualization, Data curation, Investigation, Project administration, Resources, Supervision, Writing – original draft, Writing – review & editing. LX: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing – original draft, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

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