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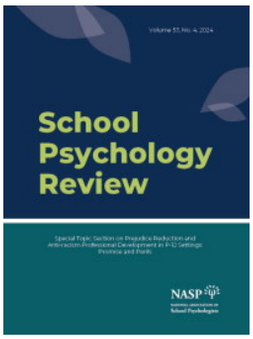

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An Initial Validation of Transformative Social and Emotional Learning (SEL) Competencies Scale Among Asian American Pacific Islander (AAPI) Teachers

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ABSTRACT

Although transformative social and emotional learning (SEL) has been recognized as a compelling concept to advance SEL practices toward equitable outcomes for both students and adults in schools, psychometrically and theoretically sound measurement tools facilitating the implementation of transformative SEL practices are still lacking. To address this research gap, we conducted the initial validation of a teacher self-reflection scale initially developed by Collaborative for Academic, Social, and Emotional Learning (CASEL) to assess teachers' perception of their social and emotional competencies in transformative SEL practices among a sample of 249 Asian American and Pacific Islander (AAPI) teachers in the U.S. Results of exploratory confirmatory factor analyses suggested that a 22-item version of the Transformative Social and Emotional Learning Competencies Scale (TSELCS-22) was best supported by a second-order model with one second-order factor of overall social and emotional competencies and five first-order factors. The measurement invariance test indicated that the factor structure of the current scale was consistent across genders. Correlation analyses showed that teachers' self-reported social and emotional competencies based on TSELCS-22 generally had positive correlations with teachers' subjective well-being. TSELCS-22's practical implications in supporting the transformative SEL practices for AAPI teachers and teachers and students from other diverse backgrounds were discussed.

IMPACT STATEMENT

This study is the first validation study of the Transformative Social-Emotional Learning Competencies Scale among Asian American and Pacific Islanders (AAPI) teachers. In alignment with CASEL's transformative social and emotional learning (TSEL) framework, it provides the initial empirical evidence for a self-reported assessment tool to understand and support transformative SEL practices among teachers and to improve teacher well-being and workforce, particularly for those from racial/ethnic minoritized backgrounds.

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For decades, the high levels of stress, burnout, and mental health challenges faced by teachers have been chronic educational and public health concerns across the globe, including in the U.S. (Holt & Gershenson, 2022). During the COVID-19 pandemic, teachers' escalating mental health concerns are at an all-time high (Kush et al., 2022), and teacher attrition issues have also been exacerbated, particularly among teachers of color (Green & Bettini, 2020). Now that the transition back to the classroom has begun and federal relief funds from American Rescue Plan are flowing to public K-12 districts, schools, and districts have been renewing their focus on prioritizing social and emotional support for teachers and supporting their roles in implementing school-wide social and emotional learning practices for a resilient school reopening and post-pandemic recovery (Ferren, 2021). Recognizing that the pandemic has been widening educational inequity and mental health disparities, transformative SEL (TSEL) has been proposed by the Collaborative for Academic, Social, and Emotional Learning (CASEL) as a promising and intentional practice to more fully engage young people and adults in working toward justice and equitable schools and communities.

While the concept of TSEL is compelling to policymakers and practitioners, limited empirical studies have been conducted to understand teachers' TSEL practices; measurement tools for assessing teachers' self-perception of their social and emotional competencies in such practices are also underdeveloped. TSEL's conceptualization highlights identity, agency, belonging, engagement, and curiosity as transformative expressions of the five core social and emotional competencies (Jagers et al., 2021). Understanding teachers' social and emotional competencies in TSEL practices could improve our understanding

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of how teachers engage with and foster cultural humility and elevate the voices of teachers with marginalized/minoritized identities. This shift away from dominant White and Eurocentric standards in SEL is pivotal for enhancing equitable educational outcomes across diverse student populations (Drake & Oglesby, 2020). To address the measurement gaps of teachers' social and emotional competencies in TSEL practices, particularly among teachers from marginalized/minoritized groups, we conducted the first validation of CASEL's TSEL scale among teachers from Asian American and Pacific Islanders (AAPI) communities to understand AAPI teachers' self-perception of their social and emotional competencies in TSEL practices.

Teachers' Social and Emotional Competencies

The vital roles of teachers' social and emotional competencies in the success of teachers and their students (Schonert-Reichl, 2017) have been supported by empirical studies guided by the Job Demands and Resources (JD-R) model (Bakker & Demerouti, 2017) and the prosocial classroom model (Jennings & Greenberg, 2009). The JD-R model argues that job demands and resources reveal two independent psychological processes (e.g., the health impairment process and emotional process) to predict individuals' burnout and job satisfaction, respectively (Bakker & Demerouti, 2017). According to the JD-R model, teachers' self-perception of their higher levels of social and emotional competencies may function as a job resource linked to improved motivational functioning and positive indicators of teacher wellness (Bakker & Demerouti, 2017). In contrast, teachers' perception of lower levels of social and emotional competencies may function as job demands linked to increased health impairment and negative indicators of teacher wellness (Bakker & Demerouti, 2017). A few studies indicated that teachers who received interventions targeted at improving SEL competencies reported reduced psychological and physical distress (Jennings et al., 2019; Oliveira et al., 2021). For example, in an experimental study by Jennings et al. (2019), 224 teachers in New York were randomly assigned to schools to receive interventions focusing on improving SEL competencies. They found that teachers who received the intervention showed significant reductions in psychological distress and ache-related physical distress while displaying an increase in emotional regulation and some dimensions of mindfulness, with the effect sustaining over one year (Jennings et al., 2019). The role of teachers' social and emotional competencies on students' outcomes has also been evidenced in empirical studies (Herman et al., 2018; Ruzek et al., 2016). According to the prosocial classroom model (Jennings & Greenberg, 2009), teachers' social and emotional skills and competencies indirectly affect classroom climate and students' social-emotional and academic outcomes *via* its impacts on the development and maintenance of supportive teacher-student relationships, effective classroom management, and effective SEL program implementation. For instance, a latent profile analysis of 121 teachers and 1,817 students from nine U.S. elementary schools indicated that teachers' lower levels of coping skills in response to stressors were found to be associated with their students' higher rates of behavioral problems and lowest academic achievement (Herman et al., 2018).

Among the empirical studies documenting the importance of teachers' social and emotional competencies, the majority of them treated the educator sample as an aggregated group without examining teachers from different racial/ethnic backgrounds (Garner et al., 2018; Jennings et al., 2017, 2019). Much fewer empirical studies have been conducted to understand the role of social and emotional competencies in the well-being of teachers from minoritized/marginalized backgrounds. Teachers from minoritized/marginalized groups experience not only job stressors and demands within schools but also racial conflict and other forms of racial stressors (Pizarro & Kohli, 2020). For example, AAPI teachers are disproportionately represented in school systems while facing various forms of systematic oppression, such as colonialism, nationalism, anti-blackness, xenophobia, model minority myth, and anti-Asian violence (Fan & Zan, 2019). However, there is a lack of scientific understanding of AAPI teachers' social and emotional competencies, which are important for promoting their resilience. In our review of the literature, we only identified a few qualitative studies examining some specific aspects of social and emotional competencies (e.g., critical consciousness and self-awareness, and their influences on teacher and student outcomes (Chow, 2021; Kokka & Chao, 2020). For example, a qualitative study that explored internalized racism among Asian American math teachers recommended that building critical consciousness that enhances the awareness of systemic inequality and commitment to action can help Asian American teachers reduce their internalized racism and foster self-empowerment (Kokka & Chao, 2020). In another study, Chow (2021) analyzed semi-structured interviews with 25 Asian American teachers and showed that Asian American teachers play a vital role in their facilitation of cross-cultural classroom interactions, affirmation of Asian American student's racial/ethnic identities, provision of non-stereotypical discourses to understand Asian Americans and creation of inclusive learning spaces for all students. While qualitative data could provide some

nuanced insights into AAPI teachers' perceptions of their social and emotional competencies, the small sample size and the lack of a multidimensional assessment of their competencies across multiple domains limit the generalizability and practical implications of the studies. One of the goals of the present study was to address these methodological limitations and advance the measurement of teacher social and emotional competencies by establishing the validity and reliability of an existing measure of social and emotional competencies guided by CASEL's transformative SEL framework among a larger sample of AAPI teachers.

Measurement of Teacher Social and Emotional Competencies

With the importance of teachers' social and emotional competencies being recognized, research attempts have been made to improve the assessment of teachers' social and emotional competencies in the past two decades. Before educator-specific assessment tools were developed to guide SEL practices, some well-developed tools assessing general populations' social and emotional skills had been validated among teachers (Lozano-Peña et al., 2021). For example, based on Bar-On's five-dimension model of emotional regulation (Bar-On, 2006), the 10-item Emotional Regulation Questionnaire was validated among teachers to assess their cognitive reappraisal and expressive suppression (Rajendran et al., 2020). In the past decades, with the Collaborative for Academic, Social, and Emotional Learning's (CASEL) SEL model being widely used as a guiding framework for SEL implementations in many schools across the U.S., there has been a growing number of teacher measures developed to align with CASEL's SEL Competencies Framework. For example, the Social-Emotional Competence Teacher Rating Scale (SECTRS) assesses four domains of teacher SEL competencies (i.e., teacher-student relationships, emotion regulation, social awareness, and interpersonal relationships). It was shown to have adequate psychometric properties when validated among a sample of 302 teachers from Northern California and Honolulu, in which over half of the sample was White teachers (Tom, 2012). The Social and Emotional Skills Questionnaire assessed all five domains consistent with the CASEL model (i.e., self-awareness, self-management, social awareness, relationship skills, and responsible decision-making; Yoder, 2014). However, to our best knowledge, no validation study has been conducted to support the Social and Emotional Skills Questionnaire's factor structure validity. A most recently developed questionnaire named "EduSEL" (Hemi & Kasperski, 2023) assesses teachers' CASEL competencies by grouping them into three subdimensions (i.e., cognitive skills, emotional awareness, and social competence). Its validity and reliability were supported by 331 Israeli teachers (Hemi & Kasperski, 2023).

Among the growing numbers of measurement development and validation studies on teacher social and emotional competencies, limited attention has been given to racial/ethnically minoritized teachers who have unique and distinct cultural backgrounds from the dominant culture in the US. Hecht and Shin (2015) stated that cultural structure, function, and process greatly influence an individual's SEL competencies, which could lead to cultural variation in individuals' expression and self-perception of social and emotional competencies. However, in most existing studies, the psychometric properties of social and emotional competencies measures were examined in aggregated teacher samples without testing the measurement invariance and group differences across different racial/ethnic groups (Hemi & Kasperski, 2023; Tom, 2012; Yoder, 2014). These measures were not originally designed to adequately reflect and cultivate individuals' cultural assets, especially for teachers from racial/ethnically minoritized backgrounds (Ginwright, 2018). To our knowledge, no measurement study has been conducted to understand AAPI teachers' social and emotional competencies and their social and emotional well-being in SEL practices.

A Transformative SEL Approach to Assess the Social and Emotional Competencies of AAPI Teachers

In the present study, we argue that transformative SEL (TSEL) could be a promising perspective to address the measurement gaps identified above and to guide our assessment of social and emotional competencies among teachers, particularly those from racially/ethnically minoritized groups. According to CASEL, SEL is defined as the process of "acquiring and applying knowledge, skills, and attitudes to develop healthy identities, managing emotions and achieving personal and collective goals, feeling and showing empathy for others, establishing and maintaining supportive relationships, and making responsible and caring decisions" (Collaborative for Academic, Social, and Emotional Learning (CASEL), 2023). To redefine, TSEL describes identity, agency, belonging, engagement, and curiosity as transformative expressions of the five core CASEL social and emotional competencies; it also emphasizes the potential of SEL to transform individuals, interactions, and institutions to create more equitable educational, social, and economic environments (Jagers

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et al., 2021). The purpose of the redefinition is to adequately serve and promote optimal developmental outcomes for those from diverse backgrounds by addressing power, privilege, prejudice, discrimination, social justice, and empowerment (Jagers et al., 2019). Researching teachers' social and emotional competencies in TSEL practices could improve our understanding of how teachers engage with and foster cultural humility (i.e., a process in which one recognizes the limitations of one's own culture and sees diversity as a potential asset; Danso, 2018). It also helps elevate the voices of teachers with marginalized/minoritized identities as a way to decenter White, Eurocentric norms within SEL and help improve systemic outcomes for all students (Drake & Oglesby, 2020). In addition, research in culturally responsive SEL has primarily focused on intervention implementation and student outcomes (McCallops et al., 2019), yet not enough is known regarding how teachers understand and engage in their social-emotional learning. Therefore, this study aims to contribute to the growing body of research on adult SEL and how adults understand and model SEL in their student's life.

Based on the new conceptualization of TSEL and its core social and emotional competencies, CASEL has developed a 46-item measure assessing five core domains of SEL competencies with the key transformative expressions integrated into the five domains (Collaborative for Academic, Social, and Emotional Learning (CASEL), 2023). Although this measurement tool has been widely adopted by SEL practitioners in school-based SEL practices and school-wide implementations, to our best knowledge, its psychometric properties have not been systematically examined among teachers. Thus, there is a pressing need to conduct empirical studies to examine its psychometric properties among teachers, particularly those from minority and marginalized backgrounds. Teachers of color often bring unique perspectives, insights, and experiences that address the diverse needs of students and tend to demonstrate stronger efficacy beliefs in SEL and described practices that center on justice and equity (White et al., 2022). In addition, the TSEL measure for educators will be beneficial for school-wide assessments, allowing for the collection and analysis of data to track progress and enhance the implementation of effective SEL practices among adults.

Teachers from minoritized/marginalized groups experience not only job stressors and demands within schools but also racial conflict and other forms of racial stressors (Pizarro & Kohli, 2020). In our study, we chose to first focus on studying AAPI teachers' social and emotional competencies because they represent a particularly vulnerable group of teachers facing the dual realities of anti-Asian violence and the COVID-19 crisis as the result of the interactions between school systems and socio-political environments (Lee & Waters, 2021). From 2020 to 2021, anti-Asian crime increased by 164% (Leven, 2021). According to the Stop AAPI Hate reporting site, one in five Asian American Pacific Islanders has experienced a hate incident this past year (n.d.). The racial trauma and discrimination experienced by AAPI teachers during the COVID-19 pandemic could have real consequences for the retention of AAPI teachers. Considering that AAPI teachers are disproportionately underrepresented in public education and the rapid demographic growth of AAPI populations (Budiman & Ruiz, 2021), it is important to understand and promote their social and emotional well-being amidst the ongoing teacher of color shortage and during the post-pandemic recovery.

Furthermore, the sample of educators in the studies examining the influence of adult SEL (Garner et al., 2018; Jennings et al., 2017, 2019) and in developing measurement of teacher SEL competencies (Hemi & Kasperski, 2023) was primarily composed of females. A few studies (e.g., Tom, 2012) have examined no differences in SEL competencies across genders. Given that gender significantly influences one's identity which is a multifaceted element reflected in various SEL competency domains (Jagers et al., 2019), it is crucial to determine whether the assessment scale consistently measures the same construct across different genders.

The Purpose of the Study

The purpose of this study is to validate the 46-item SEL competencies measure developed by CASEL in alignment with the expanding definition of TSEL among a geographically diverse sample of Asian American teachers in the U.S. We conducted confirmatory factor analysis (CFA) to establish the factor structure of the survey; we also conducted measurement invariance to examine the configural, factor loading, and intercept invariances of the measure across male and female teachers. In addition, we examined its concurrent validity by examining its correlations with teachers' subjective well-being.

METHODS

Participants

The sample of the study included a total of 249 Asian American teachers (65.38% female, 23.85% male, 0.77% non-binary). Participants were recruited as part of a mixed-methods longitudinal study examining the impact of anti-Asian violence on Asian American educators' well-being over time. Participants ranged in age from 20 to 64, with a mean age of 37.13 (SD = 9.47). However, one participant's age was omitted due to a misdescribed value.

In terms of Asian ethnicity, participants identified as the following: Chinese (24.5%), Filipino (15.81%), Japanese (12.64%), Korean (10.67%), Vietnamese (8.69%), Taiwanese (3.95%), Asian Indian (2.77%), Hmong, (2.37%), Other Asian, not specified (1.58%), Pacific Islander (1.18%), Hong Kong (0.79%), Indonesian (0.79%), Pakistani (0.79%), Thai (0.79%), Cambodian (0.4%), Laotian (0.4%), Malaysian (0.4%), and Okinawan (0.4%). Additionally, 10.67% of the participants reported as bi-racial and/or multi-ethnic. Participants reported being single-grade teachers 37.40%) and multiple-grade teachers 62.60%) ranging from prekindergarten to 12th-grade school settings. More specifically, 78.48% of teachers reported teaching in regular classrooms, 7.17% in special education classrooms, and 14.35% reported other settings. Additionally, participants reported teaching in the following states: California (64.29%), Illinois (8.73%), Massachusetts (5.56%), Minnesota (4.37%), New York (3.17%), North Carolina (1.19%), Texas (1.19%), Pennsylvania (1.19%), Hawaii (1.19%), Kansas (0.79%), Washington D.C. (0.79%), New Jersey (0.79%), Colorado (0.79%), Washington (0.79%), Connecticut (0.79%), Oregon (0.79%), Arizona (0.79%), Delaware (0.40%), Florida (0.40%), Georgia (0.40%), and New Hampshire 0.40%).

Data Collection Procedures

Data were collected among 249 Asian American teachers between the Winter of 2021 to the Spring of 2022. Participants were recruited through a partnership with the twenty first Century California School Leadership Academy (21CSLA), and three large urban public school districts in California. In addition, participants were recruited through online outreach to nonprofit community organizations consisting of educator members and/or Asian American members. Prospective participants were asked to complete a brief online screening survey to determine eligibility. To be eligible for the study, participants had to self-identify as Asian American and primarily work with prekindergarten to 12th-grade students. Administration of the survey was conducted online using the Qualtrics platform, where participants' rights as research subjects and instructions on how to complete the questionnaire were provided. The online questionnaire also consisted of a network questionnaire and school climate measures, in addition to those components that were the focus of the present study. Participation was voluntary, and a compensation of a $30 Amazon voucher was provided to participants upon completion of the online survey. All measures and procedures were approved by the institutional review board of the researchers' university and the three public school districts in California.

Measures

Transformative Social and Emotional Learning Competencies Scale – 46 Items (TSELCS-46)

The original version of the TSELCS-46 is comprised of 46 items that measure teacher's perceptions of how easy or difficult they feel when applying each social-emotional learning skill in school on a 4-Likert scale (1 = Very difficult, 2 = Difficult, 3 = Easy, 4 = Very easy). In this study, the original TSELCS-46 has been refined into the 22-item version of TSELCS.

Teacher Subjective Well-Being Questionnaire (TSWQ)

The TSWQ assesses teachers' subjective well-being, conceptualized as school connectedness and teaching efficacy (Renshaw et al., 2015). de Biagi et al. (2018) found that the TSWQ had a significant moderate correlation with quality-of-life measures among Brazilian educators, which supports its concurrent validity. It consists of a total of 8 items, including four items for measuring teachers' perceptions of school connectedness and the other four items for teacher's teaching efficacy, on a 5-Likert scale (0 = Never, 1 = Rarely, 2 = Sometimes, 3 = Frequently, 4 = Always). The CFA results on the two-factor correlation model of TSWQ showed fit statistics of x^2=100.017 (df = 19, p<.001), Comparative Fit Index (CFI)=0.904, Root Mean-Square Error of Approximation (RMSEA)=0.131, and Standardized Root Mean-Square Residual (SRMR)=0.075.[1] For its reliability, Cronbach's alpha coefficients were 0.870 for school connectedness and 0.745 for teaching efficacy. The mean scores of each subcomponent were used to investigate the concurrent validity of TSELCS-46.

Data Analyses Procedure

To validate the TSELCS, SPSS v26.0 and the Lavaan package of the R program were utilized, following three stages. First, a multifaceted process of item reduction was conducted on the original TSELCS-46, guided by CASEL's (2021) theoretical framework, findings from factor analyses, and considerations of practical utility. The initial step involved conducting CFA on the full 46-item scale to test how well the items represent the underlying theoretical constructs of CASEL's framework of transformative SEL competencies. CFA analyses and refinement of the original TSELCS-46 were performed in the full sample and two gender samples (i.e., male and female samples) to ensure that the scale was applicable across the full sample and gender groups, enhancing its generalizability and relevance. Fit statistics used to decide the optimal model fit were the Comparative Fit Index (CFI), Standardized Root

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Mean-Square Residual (SRMR), and Root Mean-Square Error of Approximation (RMSEA). CFI larger than .90 is considered desirable, whereas a model with SRMR and RMSEA below .08 was regarded as a good fit (Hu & Bentler, 1998, 1999). Based on the factor analyses, items with factor loadings lower than 0.05 were removed and highly correlated items were identified based on the modification indices. Model modification indices from the CFA output were used to support the identification of highly correlated item pairs. To reduce the redundancy within the scales and improve the overall model fit, one item from each pair of highly correlated items was sequentially removed until an adequate model fit was achieved. Both the psychometric properties (e.g., factor loadings) and the practical utility of the items (e.g., the meaning, length, and readability of the items), were considered and compared when deciding which item in the two-item pairs were removed. For example, two items ask similar questions in the category of self-awareness ("1. I can identify and name my emotions at the moment." and "3. I recognize when my emotions, thoughts, and biases influence my behavior my behavior and my reactions to people and situations, both negatively and positively). The model fit indices indicated that the high correlation between these two items aggravates the entire model fit statistics of the CFA model, suggesting deleting either of these items or allowing correlation of these two measured variables. Thus, the authors decided to remove item number 1, which had relatively lower factor loading than the other, to improve overall fit statistics of the CFA model. This item reduction procedure also ensures that each item in the refined scale has a unique and meaningful contribution to the latent factors. To minimize the potential risk that the item reduction process may distort the content and face validity of the TSELCS, we also consulted with a team of practitioners who have been actively working on developing TSEL standards in the California Department of Education to make sure that the scale validation and item reduction process were supported by both theoretical and practical considerations (California Department of Education, 2021). It will also help contribute our scale validation research to a coordinated effort in promoting TSEL competencies.

Second, the CFA analyses of the refined version of TSELCS (i.e., TSELCS-22) were performed in the full sample and in two randomly divided half samples to determine the final model for the refined scale. For model comparison, model fit was assessed using Satora-Bentler scaled chi-square values ($S\text{-}Bx^2$), CFI, SRMR, and RMSEA. The $S\text{-}Bx^2$ values were used to identify whether two nested models have statistical differences in their model fits (Asparouhov & Muthén, 2010). Furthermore, the local data model fit of the final CFA model was investigated by confirming whether residual correlations among items are greater than |0.10| (Kline, 2023). To verify whether the true score variance in a composite is attributable to the general factor or the subscale composites, we compared the omega hierarchical and omega subscale from the final model as suggested by Schmid and Leiman (1957).

Thirdly, a measurement invariance test of TSELCS-22 across gender (i.e., male and female, excluding three non-binary participants) was conducted, following the five-step procedure suggested by Chen et al. (2012). Since the chi-square difference test, which is traditionally used for testing invariance across multiple groups, is vulnerable to nonnormality and large sample size, the change of CFI was considered. Cheung and Rensvold (2002) recommended that the change of CFI larger than 0.005 signifies the difference between the two models when the sample size is smaller than 300. In the case of not fulfilling full factor loading and intercept invariances, partial factor loading and intercept invariances that deleted constraints of one-factor loading and one intercept which showed the biggest difference across gender were acknowledged (Byrne et al., 1989). If full or partial measurement invariance were achieved, latent mean comparisons of overall TSELCS-22 and its subscale scores were conducted between male and female groups, with female teachers as the comparison reference groups. Third, by calculating the Pearson correlation coefficients of the total and five-factor scores of TSELCS-22 and two-factor scores of TSWQ, the concurrent validity of TSELCS-22 with teachers' subjective well-being was examined. Cronbach's alpha reliability coefficients were also calculated on the total and five-factor scores.

To decide how to process the missing data, it was identified whether the data were missing completely at random (MCAR). By conducting Little's (1998) MCAR test, the results demonstrated that the data were not MCAR (x^2=68.370, df=48, p=.028). However, even in the case of not missing at random (NMAR), deleting cases with missing data or replacing missing data with the mean of each variable is not the best method to utilize available information (Woo & Yoon, 2008). Rather, based on the recommendation of Enders and Bandalos (2001), missing data were processed using full information maximum likelihood (FIML), which does not impute scores for missing data but instead utilizes the raw data to establish parameter estimates.

RESULTS

Stage 1: Confirmatory Factor Analysis and Refinement of TSELCS-46

The original TSELCS Competencies Scale developed by Collaborative for Academic et al. (2021) had five subscales with a total of 46 items: self-awareness (9 items), self-management (9 items), social awareness (9 items),

relationship skills (10 items), and responsible decision-making (9 items). Based on the data collected using TSELCS-46, confirmatory factor analysis (CFA) was conducted with the full sample to find the sets of items that make the scale have the optimal model fit. When performing CFA, the second-order model was selected as the hypothesized model based on the theoretical model of Collaborative for Academic et al. (2021). The original 46-item TSELCS showed the fit statistics of x^2=1,862.368 (df = 984, p<.001), CFI = 0.800, SRMR = 0.069, RMSEA = 0.060 [0.056, 0.064]. As presented in the Supplemental Table 1, six items had very low factor loadings (below 0.50) on the hypothesized factors, those items were removed to improve the model fit. Based on the 40-item TSELCS, CFA was conducted in different gender groups (i.e., male and female). Seven more items with low factor loadings were additionally eradicated to enhance model fits for each gender group. Lastly, based on the 33-item TSELCS, CFA was again conducted in the full sample and removed items with high correlations with others that deteriorate the overall model fit, based on the suggestions of model fit indices. Through this process, 11 more items with the lowest factor loadings were removed, and 22 items were left to form the refined version of TSELCS (TSELCS-22). Consultation feedback received from the team of SEL practitioners supported the removal of the items identified by CFA and the face validity and practical utilities of these remaining 22 items.

Stage 2: Confirmatory Factor Analysis of TSELCS-22

The results of CFA on the hypothesized model (i.e., second-order model) and alternative models (i.e., third-order model, one-factor model, bi-factor model, and five-factor model) with the full sample are presented in Table 1. One-factor model was rejected since it showed CFI below 0.90 and RMSEA over 0.08. Although both the third-order model and the bi-factor model had better-fit statistics than the second-order model, they had statistical errors such as Heywood cases, which show negative variances in estimates, and negative covariances among different items which are not consistent with the correlation coefficients. Comparing the five-factor model with the second-order model, the Satorra–Bentler scaled chi-square difference was 25.402 (df = 5, p<.001), indicating that there was a significant difference in model fit between the two models. However, considering that the second-order model is more consistent with the theoretical framework of CASEL's SEL competency model and the fact that the fit indexes of the second-order model indicated adequate model fit, the second-order model was chosen as the final model.

Table 1. Fit Statistics for Hypothesized and Alternative Models

Model	x^2	df	CFI	SRMR	RMSEA [90% CIs]
Second-order model	304.275***	204	0.944	0.050	0.044 [0.034, 0.055]
Third-order model	298.642***	199	0.944	0.051	0.045 [0.034, 0.055]
One-factor model	554.522***	209	0.806	0.070	0.081 [0.073, 0.090]
Bi-factor model	221.290***	172	0.972	0.040	0.034 [0.019, 0.046]
Five-factor model	274.551***	199	0.958	0.044	0.039 [0.027, 0.050]

Note. χ^2: Chi-square statistic; *df:* degrees of freedom; CFI: comparative fit index; SRMR: standardized root mean-square residual; RMSEA: root mean-square error of approximation.
***p<.001.

After the second-order model was chosen as the final model, CFA was replicated with two randomly selected half samples. The first half-sample had fit statistics of x^2=255.715 (df = 204, p<.001), CFI = 0.939, SRMR = 0.068, RMSEA = 0.045 [0.024, 0.062], while the fit statistics of the second half sample were x^2=272.211 (df = 204, p<.001), CFI = 0.929, SRMR = 0.060, RMSEA = 0.052 [0.034, 0.067]. Since items had similar standardized factor loadings in the two half samples (Table 2), all subsequent analyses were performed with the full sample. The standardized factor loadings of the second-order model with the full sample are presented in Figure 1. In addition to the global data-model fit, we investigated residual correlations among all items and none of the correlations were greater than |0.10| (Kline, 2023). This result indicates that the second-order model also shows good local data-model fit as well as good global data-model fit. A comparison between the omega hierarchical (0.839) and omega subscale (0.082) shows that the true score variance in a composite is much more attributable to the general factor than to the subscale composites. Also, the omega subscale scores of each group factor were all smaller than 0.50 (i.e., self-awareness 0.247, self-management 0.340, social awareness 0.405, relationship skills 0.143, responsible decision-making 0.154), corroborating that the overall score is more reliable and interpretable than the five subscale scores.

Stage 3: Measurement Invariance Test of TSELCS-22 and Latent Mean Comparison by Gender

Measurement invariance was tested in a hierarchical sequence with five incrementally restrictive steps to confirm whether the factor structure of the finalized model is statistically equivalent across male and female teachers. The results are summarized in Supplemental Table 2. The first step is to examine the configural invariance across different gender groups, which examines whether the same items were indicators of the same latent factor. In this step, the same parameters in the second-order model were estimated across male and female teachers, but

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Table 2. Confirmatory Factor Analysis

	Sample 1							Sample 2						
Item	*B*	*β*	SE (*B*)	*Z*	Var	Std. var	SE (var)	*B*	*β*	SE (*B*)	*Z*	Var	Std. var	SE (var)
TSEL competencies					0.127	1.000	0.044					0.234	1.000	0.063
Self-awareness	1.032	0.788	0.210	4.923	0.082	0.378	0.024	0.814	0.876	0.134	6.087	0.047	0.232	0.020
Self-management	0.607	0.603	0.159	3.808	0.082	0.636	0.031	0.631	0.600	0.138	4.582	0.166	0.641	0.052
Social-awareness	1.098	0.914	0.216	5.084	0.030	0.164	0.017	0.736	0.807	0.124	5.924	0.068	0.349	0.020
Relationship skills	1.000	0.826	–	–	0.059	0.318	0.028	1.000	0.925	–	–	0.040	0.145	0.027
Responsible decision-making	0.929	0.857	0.201	4.621	0.039	0.265	0.019	0.632	0.844	0.124	5.101	0.038	0.288	0.016
Factor 1: Self-awareness														
1. I use self-reflection to understand the factors that contribute to my emotions and how my emotions impact me.	0.930	0.692	0.133	7.012	0.204	0.521	0.032	0.854	0.681	0.126	6.772	0.170	0.536	0.026
2. I recognize when my emotions, thoughts, and biases influence my behavior and my reactions to people and situations, both negatively and positively.	0.675	0.636	0.100	6.746	0.146	0.595	0.021	0.909	0.698	0.128	7.104	0.176	0.513	0.027
3. I recognize and reflect on ways in which my identity is shaped by other people and my race, culture, experiences, and environments.	1.000	0.785	–	–	0.135	0.384	0.026	1.000	0.744	–	–	0.163	0.447	0.028
4. I believe I will continue to learn and develop skills to better support all young people to succeed.	0.929	0.714	0.123	7.303	0.169	0.491	0.027	0.702	0.581	0.115	6.095	.195	.662	.028
Factor 2: Self-management														
5. I can get through something even when I feel frustrated.	0.946	0.580	0.205	4.624	0.227	0.664	0.036	0.727	0.636	0.134	5.412	0.202	0.596	0.033
6. I can claim myself when I feel stressed or nervous.	1.000	0.594	–	–	0.236	0.647	0.038	1.000	0.697	–	–	0.274	0.514	0.051
7. I modify my plans in the face of new information and realities.	0.852	0.576	0.200	4.269	0.188	0.668	0.030	0.603	0.592	0.115	5.226	0.175	0.649	0.027
8. When juggling multiple demands, I use strategies to regain focus and energy.	1.159	0.682	0.225	5.142	0.198	0.535	0.037	0.686	0.559	0.138	4.966	0.268	0.687	0.040
Factor 3: Social-awareness														
9. I can grasp a person's perspective feelings from verbal and nonverbal cues.	0.808	0.646	0.120	6.731	0.166	0.582	0.024	1.041	0.763	0.130	8.022	0.152	0.418	0.025

(*Continued*)

Table 2. Continued.

	Sample 1							Sample 2						
Item	*B*	*β*	SE (*B*)	*Z*	Var	Std. var	SE (var)	*B*	*β*	SE (*B*)	*Z*	Var	Std. var	SE (var)
10. I pay attention to the feelings of others and recognize how my words and behavior impact them.	1.006	0.739	0.131	7.658	0.154	0.454	0.024	0.753	0.606	0.121	6.237	0.190	0.633	0.027
11. I show care for others when I see that they have been harmed in some way.	0.807	0.617	0.125	6.472	0.193	0.619	0.027	0.894	0.724	0.116	7.702	0.141	0.475	0.022
12. I work to learn about the experiences of people of different races, ethnicities, or cultures.	1.000	0.738	–	–	0.152	0.455	0.024	1.000	0.747	–	–	0.154	0.441	0.024
13. I appreciate and honor the cultural differences within my school community/ workplace.	0.910	0.677	0.130	7.007	0.179	0.542	0.026	0.885	0.718	0.114	7.743	0.144	0.485	0.022
Factor 4: Relationship skills														
14. I can articulate ideas that are important to me in ways that engage others.	0.879	0.579	0.178	4.940	0.284	0.664	0.042	0.734	0.614	0.124	5.903	.244	.624	.035
15. I can have honest conversations about race and racism with young people, their families, and other community members.	1.000	0.588	–	–	0.352	0.655	0.053	1.000	0.685	–	–	0.309	0.530	0.048
16. I work well with others and generate a collegial atmosphere.	0.780	0.594	0.163	4.789	0.207	0.647	0.031	0.561	0.566	0.103	5.461	0.183	0.680	0.026
17. I make sure everyone has had an opportunity to share their ideas.	0.777	0.612	0.157	4.949	0.187	0.626	0.029	0.570	0.600	0.097	5.874	0.158	0.640	0.022
18. I can work through discomfort when dealing with conflict, listen to feelings from all parties, and help them understand different perspectives.	0.784	0.534	0.167	4.694	0.287	0.715	0.041	0.690	0.548	0.128	5.411	0.304	0.700	0.042
Factor 5: Responsible decision-making														
19. I involve others who are impacted to explore a problem collaboratively before choosing a solution or launching a new project.	1.000	0.631	–	–	0.225	0.602	0.034	1.000	0.589	–	–	0.246	0.652	0.035

(*Continued*)

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Table 2. Continued.

	Sample 1							Sample 2						
Item	*B*	*β*	SE (*B*)	*Z*	Var	Std. var	SE (var)	*B*	*β*	SE (*B*)	*Z*	Var	Std. var	SE (var)
20. I consider how my choices will be viewed through the lens of the young people I serve and the community around them.	0.871	0.665	0.151	5.763	0.142	0.558	0.023	1.089	0.728	0.188	5.808	0.138	0.471	0.022
21. I consider how my personal and professional decisions impact the lives of others.	0.911	0.673	0.162	5.622	0.149	0.547	0.024	1.088	0.759	0.180	6.040	0.115	0.424	0.020
22. I help to make my personal and professional community a better place.	0.821	0.576	0.157	5.238	0.201	0.668	0.029	0.988	0.699	0.165	6.009	0.134	0.511	0.021

Note. B: unstandardized factor loading; *β*: standardized factor loading; SE(B): standard error of factor loading; Z: robust z score; Var: unstandardized variance; Std. Var: standardized variance; SE(Var): standard error of variance.

different estimates were allowed for the corresponding parameters in the different groups. The fit of the configural invariance model (M1) was x^2=625.980 (df = 408, p<.001), CFI = 0.887, RMSEA = 0.066 [0.055, 0.075], and SRMR = 0.063, which provides a baseline value against which all subsequently specified invariance models were compared (Byrne & Stewart, 2006).

The second step is to test the invariance of first-order factor loadings by constraining all first-order factor loadings to be equal across multiple gender groups. Comparing M1 and M2, the change of CFI was −0.004, indicating the invariance of first-order factor loadings between male and female teachers.

For the third step, all second-order factor loadings were further constrained to be equal across groups based on M2. Comparing M2 and M3, the change of CFI was less than −0.001, indicating the measurement invariance of first- and second-order factor loadings between male and female teachers.

In addition to the constraints on the first- and second-order factor loadings in M3, the fourth step was to confirm whether the intercepts of 22 measured variables were equal across multiple groups. Comparing M3 and M4, the change of CFI was −0.009, which shows a significant difference when the sample size is under 300 (Cheung & Rensvold, 2002). Thus, one intercept of the measured variable with the most significant difference between male and female groups (i.e., item 16) was unconstrained. Comparing M3 and M5, the change of CFI was −0.004, showing the measurement invariance of first- and second-order factor loadings and intercepts of measured variables (except for item 16) across the two groups.

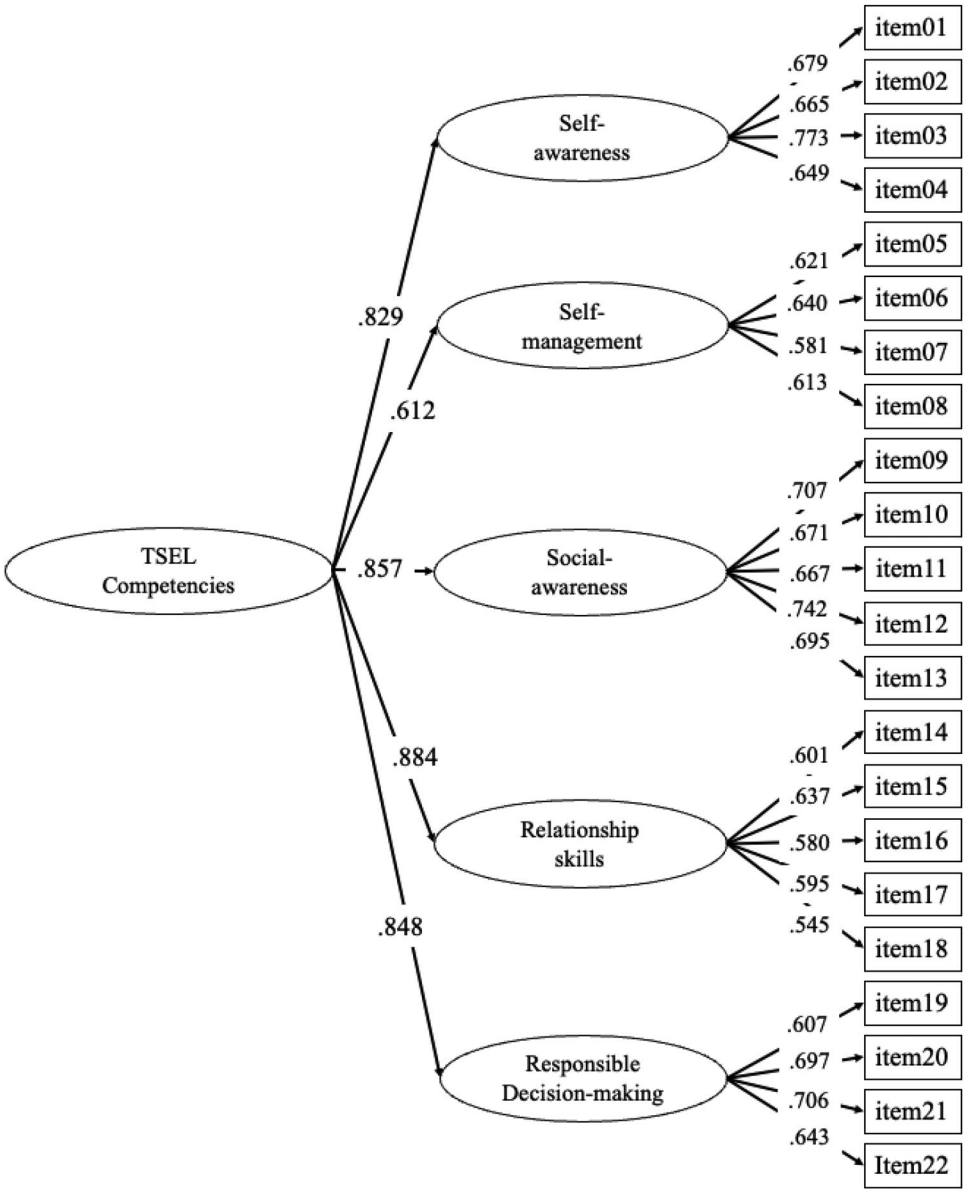
Lastly, for the fifth step, all intercepts of the first-order latent factors were additionally constrained to be equal across male and female teachers, based on M5. Comparing M5 and M6, the result shows that the change of CFI was −0.005, indicating the measurement invariance of first- and second-order factor loadings and intercepts of measured variables (except for item 16) and all first-order factors across the male and female groups.

As shown in Supplemental Table 3, the latent mean comparison suggested that there were no significant gender differences in latent means for the overall TSELCS-22, relationships skills, and responsible decision-making). However, male AAPI teachers reported significantly higher latent mean than female teachers in three subdomains: self-awareness (Latent Mean Difference$_{\text{Male—Female}}$ =0.125, p = 0.024), self-management (Latent Mean Difference$_{\text{Male—Female}}$ = −0.109, p = 0.007), and social-awareness (Latent Mean Difference$_{\text{Male—Female}}$ =0.099, p = 0.034).

Stage 4: Concurrent Validity and Reliability

The concurrent validity of the TSELCS-22 was investigated by calculating the correlation coefficients among TSELCS-22 total and subscale scores and two subscale scores of TSWQ in the full sample. As Supplemental Table 4 shows, teachers' school connectedness had significant associations with the total TSELCS-22 score (r = 0.231, p<.001), self-awareness (r = 0.182, p=.004), self-management (r = 0.273, p<.001), and relationship skills (r = 0.248, p<.001), whereas had no significant correlation with social-awareness (r = 0.063, p=.326) and responsible

Figure 1. Standardized Factor Loadings for the Second-Order Model in the Full Sample



decision-making ($r = 0.123$, $p = .053$). Teaching efficacy had statistically significant relationships with all TSELCS-22 total and subscale scores: total TSELCS score ($r = 0.393$, $p < .001$), self-awareness ($r = 0.260$, $p < .001$), self-management ($r = 0.311$, $p < .001$), social awareness ($r = 0.257$, $p < .001$), relationship skills ($r = 0.329$, $p < .001$), and responsible decision-making ($r = 0.365$, $p < .001$). Cronbach's alpha reliability coefficients were 0.786 for self-awareness, 0.705 for self-management, 0.825 for social awareness, 0.725 for relationship skills, and 0.757 for responsible decision-making.

DISCUSSION

This study is the first to validate the TSELCS-46 among Asian American teachers. Researchers have called for the need to examine teachers' unique social and emotional needs and experiences with SEL practices and implementations in underrepresented populations (McCallops et al., 2019; Oliver & Berger, 2020). However, most research on adult SEL competencies has been conducted among aggregated teacher samples with White teachers as the main group and without differentiating teachers from diverse racial/ethnic and cultural backgrounds (Garner et al., 2018; Jennings et al., 2017). Moreover, while transformative social-emotional learning (TSEL) has been widely accepted by SEL practitioners and teachers to guide their work, there are no psychometrically sound assessment tools that have been validated among teachers with the alignment with CASEL's expanded expression of the core competencies in TSEL. This study contributes to the literature by using a geographically diverse sample of AAPI

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teachers to conduct the first empirical examination of the psychometric properties of the TSELCS developed by CASEL. Our results provided initial validation evidence of the TSELCS to support its validity and reliability with the AAPI educator sample. The TSELCS-22, a briefer revision of the original TSEL assessment developed by CASEL, has been specifically adapted and validated for practicality among this demographic. In comparison to a 46-item survey, a 22-item and psychometrically and theoretically sound measure of TSEL competencies has the potential to demonstrate a stronger practical utility considering ease of administration, time efficiency, increased response rates, and enhanced accessibility. This is particularly important in large-scale and school-wide administration where time and participant engagement are paramount. The scale validation results also support further scale validation research to apply validated versions of TSELCS-46 as assessment tools for improving the assessment of teachers' social and emotional competencies from other racial/ethnic backgrounds. Considering its significant association with teachers' subjective well-being, it could be a valuable tool for assessing teachers' overall social and emotional health, psychological well-being, and job performance. However, the small to medium magnitude of these effects urges further research.

CFA analyses showed that both the five-factor correlation model and the second-order model of the TSELCS-22 have adequate model fit. Considering the second-order model is more aligned with the theoretical conceptualization of TSEL competencies, it was chosen as the final model. Also, the computation of omega hierarchical and subscale values for both the general factor and the five group factors indicated that the variance in true scores is predominantly attributable to the general factor rather than the subscale composites. Consequently, the overall TSEL composite score may be more reliable and interpretable than the individual subscale scores. This is important information to consider when interpreting the TSEL competencies of AAPI educators across sub-domains based on the TSELCS-22. While acknowledging the need for further improvement in the variability of the five subscales in further research, our model comparison results underscored the superiority of the second-order model over the one-factor model, which failed to achieve adequate model fit. These findings reinforce the multi-faceted nature of the TSEL competencies construct and highlight the need for future research aiming at enhancing the reliability, unique variability, and interpretability of the five subscale scores through refinement of the subscale items.

Multigroup invariance analysis indicates that the second-order measurement model fits equally well for both male and female teachers based on models with partial factor loading and intercept invariances. Moreover, the latent mean comparison suggests that there were no significant gender differences in latent means for the overall TSEL competencies and two sub-domains of competencies (i.e., relationships skills and responsible decision-making). However, male AAPI teachers reported significantly higher latent mean than female teachers in self-awareness and social awareness and significantly lower latent mean than female teachers in self-management. The lack of difference in overall scores in TSELCS-22 between genders is consistent with Tom's (2012) finding of no difference in scores between genders among 302 U.S. teachers' SEL as measured by the Social-Emotional Competence Teacher Rating Scale. Moreover, Edannur (2010) found no difference between genders in aggregate emotional intelligence comprising self-awareness, self-management, social awareness, and social skills among 21 teachers across six institutions in India. Shehzad and Mahmood (2013) also showed no difference between genders in emotional intelligence measured by the Bar-On Emotional Quotient Inventory Short Version (Bar-On, 2006) among 897 university teachers in Pakistan. However, they found that female teachers had higher interpersonal skills than male teachers. They attributed this difference to family socialization. Parents tend to be more open to sharing emotions and use more emotional terminology when interacting with their daughters than their sons in Pakistan (Fivush et al., 2000).

In contrast to the insignificant gender differences in the overall TSELCS-22 in our study, some other previous studies also showed that females tend to be more adept at overall SEL than their male counterparts (Gill & Sankulkar, 2017; Romer et al., 2011; Valente et al., 2019). They attributed this difference to family socialization. Parents tend to be more open to sharing emotions and use more emotional terminology when interacting with their daughters than their sons in Pakistan (Fivush et al., 2000). Contrary to the findings in our study, some previous findings showed that females tend to be more adept at overall SEL than their male counterparts (Gill & Sankulkar, 2017; Romer et al., 2011; Valente et al., 2019). For instance, Gill and Sankulkar (2017) showed that overall emotional intelligence scores on the Emotional Intelligence Self-Assessment Questionnaire (Goleman, 2004) were higher for female teachers among 214 teacher practitioners in India and the UK. Romer et al. (2011) also demonstrated higher SEL among female adolescents than that of their male peers as measured by the Social Emotional Assets and Resilience Scales (Merrell, 2011) reported by 1,204 parents, 1,400 teachers, and 1,727 adolescent-aged students in schools across the U.S. These inconsistent results in overall and sub-domain of SEL competencies warrant consideration of differences in subjects' group dynamics and cultural backgrounds. The focus of a transformative

perspective to assess SEL competencies in the TSELCS-22 might contribute to the inconsistent findings between the present study and previous studies. It is also important to note that the late mean comparisons of the present study were based on partial measurement invariance, instead of full measurement invariance. Moreover, the sample sizes of male and female AAPI teachers were imbalanced (65.38% female, 23.85% male, 0.77% non-binary). Thus, the findings of the latent mean comparisons should be interpreted with caution.

LIMITATIONS AND FUTURE DIRECTIONS

Despite the unique contribution of this study, there are several limitations to consider when interpreting the findings and planning for future research. First, this study consisted of a relatively small sample size that limits generalizability. Although this study provides an important first step to address the research gap in measuring SEL competencies among AAPI teachers, not all Asian ethnicities were equally represented within our study sample. Future research aiming to understand the unique experiences of AAPI teachers should consider recruitment of participants representative and balanced of all AAPI ethnic groups as the experiences of our participants are not monolithic. Moreover, in our establishment of measurement invariance, the model fit dropped due to the small sample size and did not include non-binary individuals as there were not enough participants in this study and therefore contributed to limitations related to the gender-grouping invariance. Future research should also consider examining other subgroups of teachers with varying years of teaching experience, language status, and generational status. These factors may contribute to a more nuanced understanding of TSEL competencies among AAPI teachers. Additionally, validation of this scale is based on a developed scale by CASEL and did not explore additional constructs that may be inclusive of all culturally relevant approaches and understanding of TSEL competencies. In other words, there may be other key domains of TSEL competencies that future directions in research should explore across various groups of teachers.

CONCLUSION AND IMPLICATIONS FOR RESEARCH AND PRACTICE

In this study, we conducted an initial validation study on the 46-item self-reflection scale developed by CASEL that aims to assess AAPI teachers' perceptions of their social and emotional competencies in transformative SEL practices. Our findings showed that a 22-item shorter version of the TSELCS (TSELCS-22) was best supported by a second-order factor model with adequate validity, reliability, and measurement invariance across genders among AAPI teachers. The findings of the study provide some important implications for the research and practice in school-based SEL, particularly in the areas of adult SEL and transformative SEL practices.

Regarding the implications for research, the psychometric findings of TSELCS-22 set the initial empirical foundation for further developing and/or validating similar measures among teachers from different racial/ethnic backgrounds, particularly those from minoritized and under-researched groups. This would allow us to explore the cultural variations and commonalities of teachers' self-perceived social and emotional competencies across diverse cultural contexts. It would also help advance our understanding of social and emotional competencies' role in TSEL practices among teachers who are needed to promote advancements in equity within schools and systems and as part of co-creating conditions for students to thrive. Additionally, the present study contributes to the existing inconsistency regarding gender differences in TSEL competencies. Our findings revealed no significant gender disparity in overall TSEL competencies, yet highlight notable differences in areas such as relationship skills and responsible decision-making. This underscores the need for more nuanced research into gender's impact on TSEL competencies among teachers, potentially leading to gender-specific interventions or support systems. Moreover, our research emphasizes the significant association between TSEL competencies and the well-being of AAPI teachers, reinforcing the value of fostering these competencies through training practices in teacher preparation programs for pre-service teachers and induction, mentoring programs, and professional development for in-service teachers.

Moving onto the practical implications, the validation of TSELCS-22 is critical for supporting AAPI teachers' well-being and the skills and strengths related to TSEL, particularly in the context of post-pandemic recovery and anti-Asian racism. School-wide assessment and promotion of adult TSEL practices need to consider the impact of racial stressors experienced by teachers of color. Notably, the experiences of AAPI teachers and teachers experiencing discrimination and violence based on their group membership demonstrate a need for understanding TSEL competencies to better guide anti-racist and diversity, inclusion, and equity (DEI) practices. Therefore, TSELCS-22 can be utilized in communities of practice and affinity spaces as potential settings to integrate adult TSEL development and increase AAPI teachers' awareness around issues such as systemic racism and inequity.

Moreover, information on teachers' TSEL competencies in these settings can further support the professional growth of

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teachers of color, particularly for AAPI teachers experiencing anti-Asian racism, and promote well-being for adults who then influence the conditions and environments needed for students to succeed. For example, the TSELCS-22 can be utilized to integrate identity and reflective processes for teachers to engage with social justice-oriented and culturally responsive approaches to SEL practices. Particularly, for AAPI teachers and students, the examination of TSEL competencies can be used in conjunction with efforts of co-constructing equitable learning environments as a way to promote student engagement and center students' well-being. In addition, this study's initial validation of AAPI teachers' social and emotional competencies in TSEL practices provides critical feedback on how teachers can model and utilize their social-emotional skills to further support their students' identity development, curiosity, sense of belongingness, and agency.

NOTE

1. A more detailed description of the process of interpreting and determining model fit in confirmatory factor analysis can be found in the Data Analysis Procedure section.

CONFLICT OF INTEREST

The authors have no conflicts of interest to report.

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