L-Università ta' Malta
Centre for Resilience & Socio-Emotional Health

International Journal of Emotional Education
ISSN: 2073 7629

Volume 16, Number 2, November 2024 pp 21 -36

www.um.edu.mt/ijee

Development and Validation of a Social-Emotional Questionnaire for Students in Grades 4-6 (SEQ [G4-6])

Noa Weiss-Klayman[a] [1], Mark T. Greenberg[b] and Daphne Kopelman-Rubin[a]

[a]Reichman University, Herzliya, Israel

[b]Penn State University, USA

In recent years, there has been increasing awareness on the benefits of social-emotional competencies (SEC) on Israeli students. A self-report SEL measure tailored to the Israeli context, however, has yet to be developed. This research aims to validate the Social-Emotional Questionnaire for Grades 4-6 (SEQ [G4-6]), a new self-report questionnaire derived from culturally and developmentally appropriate social-emotional learning standards in Israel. Three studies were undertaken, with the first study using EFA with 1,232 students and the second study making use of CFA with 2, 464 students. Both studies indicated that the questionnaire consists of five factors: self-management, emotion recognition, relationship skills, social-awareness, and responsible decision-making. Study 3 compared the SEQ (G4-6) to the Strengths and Difficult questionnaire (SDQ) to examine discriminant validity; the results show the two questionnaires represent different theoretical constructs. The results' theoretical and practical implications are considered in terms of advancing the development of the SEQ (G4-6) as a self-report assessment tool.

Keywords: social-emotional learning, social-emotional questionnaire, validation, factor analysis, assessment.

First submission 3rd June 2024; Accepted for publication 29th October 2024.

Introduction

Social-emotional learning (SEL) has often been used as an umbrella term for a wide range of social-emotional competencies (SEC) (Jones et al., 2013). Although SEL could be defined in many ways, most current research adopts the definition the Collaborative for Academic, Social, and Emotional Learning (CASEL) formulated,

1 Corresponding author. Email address: weiss.noa@post.runi.ac.il

https://doi.org/10.56300/CSEF6491

ISSN 2073 7629

namely SEC related to an individual's ability to understand, manage, and effectively navigate their emotions and behaviour, adeptly deal with challenges, and establish and maintain healthy relationships (CASEL, 2022). CASEL's framework comprises five main competencies: self-management, self-awareness, social awareness, relationship skills, and responsible decision-making (CASEL, 2022).

The contribution of well-developed SEC to children's lives is undeniable, as can be seen by their positive influence on mental health (Zhou, 2023), academic achievement, behaviour and potential contributions to society and the economy (Muñiz, 2020). Proficiency in managing emotions and robust social competencies correlate with higher academic accomplishments (Barnes et al., 2021), better learning environments (Kaspar & Massey, 2023), enhanced workplace success (Belfield et al., 2015), healthier interpersonal relationships (Demirci et al., 2022), and better mental well-being (Kaşıkcı & Öğülmüş, 2023). Given these far-reaching implications and to identify students' expected social-emotional needs, there is a need for a tool measuring what children are expected to know and do. Furthermore, since SEC vary from culture to culture (CASEL, 2015; Temko et al., 2023), a SEC assessment tool should be tailored to the specific culture. For example, research has found significant differences between North American and East Asian students (Lee & Junus, 2024). Current tools for measuring SEC have been largely designed with a focus on English-speaking, Western societies (e.g., Petrides & Furnham, 2009).

In education, developmental standards are influential and significant, fostering a common language and clear communication among educational stakeholders (Dusenbury et al., 2011), while simultaneously clarifying pedagogical expectations (Eklund et al., 2018). Validating social-emotional standards can enhance effective teaching and learning. Similar to learning objectives in various academic disciplines guiding instructional strategies, SEC standards facilitate teaching SEC and designing corresponding curricula (Eklund et al., 2018). According to Dusenbury et al., (2014), learning standards also provide an outline of priorities and enable defining efficient, achievable goals. When programmes and practises are tailored to impart specific competencies and developmental standards, assessment becomes indispensable for determining what should be taught to each student and whether they are successfully acquiring the targeted competencies (Assessment Work Group, 2019).

As expected, SEC assessment tools primarily concentrate on assessing students' SEC (e.g., Wallender et al., 2020). At present, there are limited assessment tools for student SEC that have been deemed both sufficiently concise and psychometrically sound (Lee et al., 2023). Several assessment approaches are used to measure and evaluate SEC (Assessment Work Group, 2019). One approach is direct assessment, where students demonstrate their SEC by tackling complex social and emotional tasks. This approach has several strengths, including its ability to provide an objective measurement of competencies and produce reliable, valid scores for various uses. However, its technical complexity makes it expensive to develop and validate (Scott et al., 2023).

Another commonly used approach is a rating scale for which an evaluator fills out a questionnaire on a particular student (Lee et al., 2023). This is straightforward and practical form of assessment (Anthony et al., 2020). Furthermore, teachers are less influenced by social desirability biases than students (Assessment Work

Group, 2019) since they have a wealth of experience to draw from when evaluating student competencies (Duckworth & Yeager, 2015). However, this approach can be burdensome for teachers who need to complete multiple ratings and it may introduce biases like "halo" effects, where teachers rate students they favour more positively than others (Scott et al., 2023).

Another option is self-report, with students completing questionnaires to assess their own competencies (Manzano, 2022). These can be efficiently administered to large groups of students using readily available online survey platforms. However, they are susceptible to students providing answers they believe are socially desirable (Bowman & Hill, 2011), rely on students' awareness of their actual competence levels (Kanopka et al., 2020), and assume students have sufficient reading skills (Assessment Work Group, 2019). Despite their inherent limitations, self-report questionnaires are widely used to evaluate students' SEC (Kanopka et al., 2020).

In recent years, more and more self-report questionnaires for addressing SEC have been developed, mainly in the US (Dermody & Dusenbury, 2022). However, since these competences must be not only developmentally appropriate, but also culturally appropriate (Assessment Work Group, 2019) there was a need to develop such standards for use in Israel. Despite the increasing focus on SEL in Israel, standardisation of assessment tools is still in its infancy, and there is a lack self-report SEC questionnaires for students of all ages. The report of the consensus committee on Social Emotional Learning in Schools of the Initiative for Applied Education Research at the Israel Academy of Sciences and Humanities (Benbenishty & Friedman, 2020), which serves as the foundation for promoting SEL in Israel, highlights the need to better understand SEC of Israeli children and thus to develop measures designed for the Israeli context. Hence, Sagie and colleagues (2024) utilised a collaborative action research method (Brydon-Miller et al., 2020) to develop a framework of local SEL standards informed by the CASEL model. Sagie et al. (2024) subsequently articulated several SEL standards tailored specifically to Israeli culture from birth to 18 years in three-year increments, namely 0-3 years old, 3-6 years old, 1st-3rd grade, 4th-6th grade, 7th-9th grade, and 10th-12th grade (Sagie et al., 2024).

As highlighted in a recent comprehensive review, the CASEL framework has a significant impact on the creation of numerous SEC measures across diverse cultural settings (Martinez-Yarza et al., 2023). The current questionnaire builds on the process of developing and articulating developmentally appropriate, culturally responsive SEL standards for the Israeli cultural context by developing a self-report questionnaire for students in grades 4-6 (Sagie et al., 2024). This age group was selected both due to developmental considerations and because it is the youngest age group able to read and answer a questionnaire independently, without requiring teacher intervention.

Study 1

Methodology

Participants and Procedure

A total of 1,232 students from eight Israeli schools participated in the study. Students were asked about their SEC in class and outside the school setting. Of the sample, 29% were 4th-graders (n = 360), 32% were 5th-

graders (n = 395), and 39% were 6th-graders (n = 477). Students' ages ranged from 9 to 13 years old (M = 10.40, SD = .96), and 52% were female. Approximately 85% of the students reported their parents were married and 98% said they have at least one sibling.

The ethics committees of X University's School of Psychology and the Israeli Ministry of Education approved this study. School principals were randomly approached to enquire if they were interested in participating in the study and written informed consent was obtained from schools that expressed interest in participating. The research team visited the respective schools, explained the study's purpose and then administered the questionnaires to students via Qualtrics. Students were assured their identity would remain confidential and anonymous.

Measure

Social-Emotional Questionnaire (SEQ [G4-6]) – The questionnaire was developed as part of a comprehensive project to develop and implement SEL standards in an Israeli city (the research to articulate the conceptual framework and standards is beyond the scope of this paper). First, the SEL standards that served as the basis of the questionnaire were rephrased and divided into items for the current questionnaire. Second, a pilot was conducted among students from grades 4-6 in different regions of the country. Third, the items were revised based on feedback from the pilot study. The final questionnaire includes five main clusters of competencies and 47 items. Students were required to state the extent they agree with each item using a 5-point Likert scale.

Data Analysis

Exploratory factor analysis (EFA) with Promax rotation was used with IBM SPSS V.27 (IBM Corp, 2020). To determine the number of factors, parallel analysis was computed. Items were retained if their loading exceeds .40 on the main factor; cross-loadings of no more than .20; and theoretical considerations. The EFA was repeated until a final model that met the abovementioned quality criteria was obtained. Cronbach's α and McDonald's Ω were used to assess the factors' reliability.

Results

The factor analysis yielded five factors according to parallel analysis. Items were excluded due to low loadings on the main factor (10 items), cross-loadings (8 items), and theoretical incompatibility (5 items). A reanalysis of the remaining 23 items indicated a clear five-factor solution reflecting relationship skills, self-management, responsible decision-making, social awareness, and emotion recognition. Table I presents factor loadings using Promax rotation. All items had acceptable loading (>.40) on their primary factor and low cross-loadings (<.30). The five-factor solution accounted for 52.9% of the common variance. Correlations among the factors were significant, positive, and moderate (see Table II). Cronbach's α and McDonald's Ω coefficients reflected adequate internal consistency. In sum, in line with CASEL's SEL framework, the EFA suggests a five-factor model of social-emotional functioning comprising relationship skills, self-management, responsible decision-making, social-awareness, and emotion recognition.

Studies 2 and 3

Methodology

Participants and Procedure

A total of 464 students from eight Israeli schools participated in the second study. Students were asked to refer to their SECs in class and outside the school setting. Of the sample, 36% were 4th-graders (n = 167), 29% were 5th-graders (n = 136), and 35% were 6th-graders (n = 161). Of the students, 49% were female. Participants filled out the SEQ (G4-6) and provided sociodemographic background information. Ethics approval was obtained as in the first study.

Measures

The Social-Emotional Questionnaire (SEQ G4-6) – Five SEC were represented by 23 items selected from Study 1 (see Table I). Relationship skills were measured by six items, self-management was measured by five items, responsible decision-making was measured by three items, emotion recognition was measured by four items, and social-awareness was measured by five items.

Strengths and Difficulties Questionnaire – The emotional and behavioural outcomes of children were evaluated by the self-report SDQ (Goodman et al., 2010). The 25 SDQ items assess five areas: conduct problems, emotional symptoms, hyperactivity, peer relationships, and prosocial behaviour. Each item is scored on a three-point scale. The score for each scale is generated by adding up the individual scores, generating a scale score ranging from 0 to 10. The scores for hyperactivity, emotional symptoms, conduct problems, and peer problems can be added to generate a total SDQ score ranging from 0 to 40. It is not uncommon that the self-report yields low Cronbach's α (emotional problems .66, conduct problems .58, hyperactivity .64, peer problems .49, and prosocial behaviour .69), yet the overall difficulties score (.79) had reasonable reliability (Richter et al., 2011; Vugteveen et al., 2022).

Data Analysis

Confirmatory factor analysis (CFA) was conducted using AMOS27 with Maximum Likelihood estimator (Arbuckle, 2020). Each item was constrained in the measurement model to load on the factor it was designed to estimate. Sagie et al. (2024) did not correlate residual terms for the items or impose equality constraints on factor loadings. Model fit was evaluated using the chi-square statistics and three additional goodness of fit indices: Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA). CFI and TLI ≥ .90 combined with RMSEA ≤ .08 reflect a reasonable model–data fit while CFI and TLI ≥ .95 with RMSEA ≤ .06 indicate excellent fit (Kline, 2016; Marsh et al., 2004).

To ensure that the SEQ (G4-6) exhibited robust psychometric properties across different grades and genders, an invariance analysis was performed. This analysis evaluates whether each item similarly contributes to the latent construct across various groups and whether the correlations between factors are equivalent among these groups. The invariance procedure involves testing and comparing models with progressively stricter constraints on model parameters (Pendergast et al., 2017). Initially, the unconstrained model allowed all

parameters to be freely estimated across groups (configural invariance). Subsequently, a more restrictive model was used, where factor loadings were constrained to be equal across groups (metric invariance). A further restrictive model was then used in which the intercepts were constrained (scalar invariance). Finally, in the most restrictive model, factor covariances were constrained to be equal across groups (covariance invariance). Invariance is usually confirmed when the chi-square difference between nested models is not statistically significant. However, since the chi-square can be overly sensitive to large samples, Chen (2007) suggested a criterion of $\Delta CFI \leq .01$ along with $\Delta RMSEA \leq .015$ to indicate invariance.

Results

Confirmatory Factor Analysis

To further establish the psychometric properties of the five dimensions of the SEQ (G4-6), all 23 relevant items were subjected to CFA. Results revealed that the five-factor solution fit the data well: $\chi^2(220) = 418.91$, $p < .001$, TLI = .92, CFI = .94, RMSEA = .04. All items had adequate and significant loadings (ranging from .49 to .70, $p < .001$) on their intended latent factor. Standardised factor loadings are presented in Appendix 1. As illustrated in Table III, the factors presented good internal consistency and moderate to strong intercorrelations. The five-factor model of the SEQ (G4-6) was further compared to an alternative model in which all items were loaded on a single factor. The one-factor model yielded a less than adequate model fit ($\chi^2(230) = 720.47$, $p < .001$, TLI = .82, CFI = .85, RMSEA = .07); model comparison indicated that the five-factor model better fit the data ($\Delta\chi^2(10) = 301.56$, $p < .001$).

Invariance Analysis across Grades and Genders

To establish grade invariance, the fit indices of the unconstrained and constrained models were compared across the three grades (4th, 5th, and 6th grade). As indicated in Table IV, the results support the metric, scalar, and covariance invariance of the measures. The three models did not differ significantly, nor did the ΔCFI exceed .01 or ΔRMSEA exceed .015, hence indicating measurement invariance across the three grades. Similar results were obtained for gender. Although the $\Delta\chi^2$ indicated a significant difference between the configural and the metric models, the ΔCFI and ΔRMSEA did not indicate gender differences. Scalar and covariance invariance did not show significant difference. Taken together, the invariance analysis indicates that the measurement model of the SEQ (G4-6) is equivalent across gender and 4th to 6th grades.

ISSN 2073 7629

Table I
EFA loadings

	Factor				
	Relationship skills	Self-management	Social-awareness	Emotion recognition	Responsible decision-making
1. To end a disagreement nicely, I propose solutions and also accept solutions that the other side proposes.	.79				
2. During a disagreement or argument, I also listen to the other side.	.78				
3. During group activities, I know how to explain what other group members did and how they contributed to the group' s success.	.72				
4. I contribute socially (e.g., I remind everyone to phone a sick classmate who was absent from school).	.69				
5. Even when I don' t agree with someone, I express my opinion clearly and in a manner that will not insult or hurt others.	.62				
6. When working in a group, I make an effort so the group will succeed, I participate, and I also let others express themselves (e.g., I read the directions out loud, make suggestions, and listen to other group members' ideas).	.57				
7. I know how I succeeded in achieving a goal I set for myself (e.g., I succeeded in improving a video that I made by reviewing and checking it several times).		.72			
8. I' m working on improving in some areas (e.g., I practise dance moves to be a better dancer; I practise playing computer games with a friend who is more skilled than me; I practise scoring goals with a friend).		.75			
9. I succeed in setting goals for myself that are important to me to achieve (e.g., preparing a presentation on a topic I researched or being accepted to a specific committee).		.67			
10. I know what helps me learn and what is less helpful (e.g., I need quiet or music to concentrate; it helps me to study with a friend).		.72			
11. I know what parts of achieving my goals will be difficult and how to cope with this difficulty (e.g., when I want to improve my grade in literature, I' m aware it will be hard for me to study alone, so I arrange to study with a friend).		.63			
12. I understand how other children feel in different situations (e.g., when I see a child sitting alone in class and not looking at anyone, I know that child feels sad).			.89		
13. I know how a certain situation will cause other children to feel (e.g., I know that if I give friends something they like to eat, they will be happy).			.85		

ISSN 2073 7629

Table I
EFA loadings (cont.)

	Factor				
	Relationship skills	Self-management	Social-awareness	Emotion recognition	Responsible decision-making
14. When I argue with a friend, I am able to describe how both my friend and I feel (e.g., I am angry, and my friend is insulted).			.60		
15. I know when a specific behaviour harms other people, animals, or property.			.49		
16. When I hear or read a story or when I see a movie, I know if the characters are in distress.			.42		
17. Sometimes, I feel multiple emotions at once (e.g., I' m excited and scared).				.74	
18. I know how I feel in different situations (e.g., I noticed that I' m excited when I answer a question in class).				.67	
19. I know how my emotions are related to my behaviour (e.g., when I feel sad, I sit alone in my room).				.65	
20. When I feel a physical sensation, I know what emotion it is related to (e.g., when I' m stressed, my stomach hurts).				.59	
21. I oppose peer pressure that could hurt me or others (e.g., if a child in my class is ostracised, I try to stop it or tell a teacher about it).					.76
22. I don' t participate in risky situations that could harm me or others (e.g., I don' t participate when there is hitting; if someone sends me a personal picture, I don' t share it with others).					.73
23. I don' t participate in behaviour that hurts other people, animals, or property, and I try to put a stop to such behaviour (e.g., I go to a party even if I don' t really want to so that I don' t insult the person who invited me; I don' t participate in shaming or I report it to an adult).					.65
Note: All factor loadings > .30 are presented in the table. Factor loadings were obtained using principal component extraction with Promax rotation.					

Table II

Study 1: Means, standard deviations, Pearson's correlations between factors, and Cronbach's α/McDonald's Ω reliabilities.

	1	2	3	4	5
1. Relationship skills	*.83/.83*				
2. Self-management	.55***	*.76/.76*			
3. Responsible decision-making	.56***	.47***	*.66/.67*		
4. Social-awareness	.59***	.40***	.27***	*.60/.60*	
5. Emotion recognition	.25***	.57***	.54***	.39***	*.75/.74*
Mean	3.81	3.76	4.05	3.24	3.87
SD	.75	.77	.87	.84	.71
Note: *** p < .001. Cronbach's α and McDonald's Ω coefficients are presented in italics on the diagonal.					

Table III

Study 2: CFA – intercorrelations and reliability

	1	2	3	4	5
1. Relationship skills	*.82/.82*				
2. Self-management	.60	*.77/.77*			
3. Responsible decision-making	.59	.46	*.69/.70*		
4. Social-awareness	.42	.53	.42	*.65/.65*	
5. Emotion recognition	.65	.59	.52	.49	*.76/.76*
Mean	3.69	3.66	4.07	3.33	3.87
SD	.77	.82	.88	.86	.76
Note: All correlations are significant at p < .001. Cronbach's α and McDonald's Ω coefficients are presented in italics on the diagonal.					

Developmental and Gender Differences in SEC

A series of independent-sample t-tests were carried out to test for gender differences in the five SEC dimensions. As shown in Table V, girls scored significantly higher than boys on the overall SEQ (G4-6) score and all five dimensions. One-way Analyses of Variance (ANOVA) testing for differences in SEC between the three grades, indicates no significant differences between the 4th, 5th, and 6th grades in the overall social-emotional score and the five SEC dimensions (Table V).

Table IV

Study 2: Invariance analysis across school grades and gender

	Model fit						Model comparison	
	χ^2	df	p	CFI	TLI	RMSEA	$\Delta\chi^2$ / df	p
School grade invariance								
Configural invariance	996.04	660	<.001	.90	.88	.03	--	--
Metric invariance	1030.07	696	<.001	.90	.88	.03	34.03/36	.563
Scalar invariance	1070.57	732	<.001	.90	.89	.03	40.50/36	.297
Covariance invariance	1093.84	752	<.001	.90	.89	.03	23.27/20	.275
Gender invariance								
Configural invariance	695.09	440	<.001	.92	.90	.04	--	--
Metric invariance	733.50	459	<.001	.92	.90	.04	38.41/19	.005
Scalar invariance	745.56	470	<.001	.92	.90	.04	12.06/11	.359
Covariance invariance	762.86	480	<.001	.91	.90	.04	17.30/10	.068

Table V

Study 2: Gender and grade differences in SEC

	Gender				Grade				
	Male	Female	t	p	4th grade	5th grade	6th grade	F	p
Relationship skills	3.58 (.81)	3.80 (.72)	2.95	.003	3.74 (.84)	3.76 (.71)	3.58 (.77)	2.50	.083
Self-management	3.58 (.85)	3.76 (.77)	2.37	.018	3.64 (.84)	3.67 (.79)	3.68 (.81)	.07	.937
Responsible decision-making	3.89 (.93)	4.25 (.77)	4.54	<.001	3.98 (1.01)	4.15 (.80)	4.08 (.78)	1.34	.263
Social-awareness	3.19 (.90)	3.47 (.79)	3.54	<.001	3.25 (.95)	3.33 (.85)	3.42 (.77)	1.59	.205
Emotion recognition	3.80 (.80)	3.96 (.70)	2.26	.024	3.79 (.86)	3.91 (.69)	3.93 (.70)	1.72	.181
Overall social-emotional skills	3.60 (.69)	3.84 (.58)	4.05	<.001	3.67 (.74)	3.75 (.60)	3.74 (.60)	.60	.551
Note: Standard deviations are presented in parentheses.									

Convergent and Discriminant Validity (Study 3)

Study 3 sought to assess the convergent and discriminant validity of the SEQ (G4-6) by examining its correlates with the well-known SDQ. As seen in Table VI, the overall SEQ (G4-6) score is negatively associated with the SDQ overall difficulties score and positively associated with the SDQ prosocial dimension. Correlations were moderate, indicating that the SEQ (G4-6) assesses a different theoretical dimension than the

SDQ. An examination of the correlations at the sub-scale level indicates that aside from a few exceptions, four out of five dimensions of the SEQ (G4-6) showed moderate and significant association with four out of five dimensions of the SDQ in the expected directions. More specifically, relationship skills, self-management, responsible decision-making, and emotion recognition of the SEQ (G4-6) were positively related to the SDQ prosocial behaviour and negatively related to conduct problems, hyperactivity, and peer problems. These four SEQ (G4-6) dimensions were weakly associated with the SDQ emotional problems. The SEQ (G4-6) social-awareness dimension was moderately and significantly associated with the SDQ prosocial and only weakly associated with emotional problems but was not associated with the other SDQ dimensions.

Table VI

Study 2: Correlations between SEQ and SDQ

	SDQ					
	Prosocial behaviour	Emotional problems	Conduct problem	Hyper-activity	Peer problems	Overall difficulties
Relationship skills	.54***	-.09	-.28***	-.31***	-.25***	-.32***
Self-management	.37***	-.10*	-.20***	-.26***	-.21***	-.26***
Responsible decision-making	.50***	.06	-.26***	-.14***	-.17***	-.17***
Social-awareness	.25***	.10*	-.05	-.06	-.03	-.01
Emotion recognition	.44***	-.03	-.17***	-.18***	-.29***	-.22***
Overall social-emotional skills	.53***	-.01	-.25***	-.24***	-.24***	-.24***

Discussion

The EFA and CFA results indicate that the SEQ (G4-6) questionnaire has five factors, namely self-management, emotion recognition, relationship skill, social-awareness, and responsible decision-making. The five factors align with CASEL's theoretical model of social-emotional learning, and show a moderate degree of differentiation. The 23-item questionnaire was found to have good fit indices and high loadings. In examining an alternative model with a single general SEC, it was observed that this model performed less well than the five factors model identified in the study. Moreover, the SEQ (G4-6) showed reasonable discriminate validity from the SDQ, which indicates that it measures different theoretical dimensions than SDQ. Results of invariance analyses indicated that the five-factor model holds true within the same age group and gender, suggesting that in each age group and gender, students understood the concept in the same way and the distinction between concepts was maintained across grades and genders.

These findings have important theoretical and practical implications. On the theoretical level, this study has shown that the SEC dimensions, except for emotion recognition, are identical to the CASEL model. The results indicate that specific aspects of the self-awareness dimension (as presented in the CASEL model)

belong to a single factor that was found in the current study, namely emotion recognition. The similarity between the structures of CASEL and the theoretical construct of the current questionnaire indicates that the CASEL model may also be valid outside the US.

This nuanced understanding has also implications for practitioners and researchers. The findings of the present study indicate that the SEQ (G4-6) could serve as a suitable tool for educators to assess the social-emotional functioning of each student in their class. In today's constantly changing world, integrating SEC standards with technology will enable teachers to develop a precise profile of each student. This will also allow teachers to tailor practises to their class's specific needs. School principals will also be able to obtain a situational overview of each age group's unique needs, which intervention programme is suitable, and similar considerations. Furthermore, researchers and professionals working to develop intervention programmes will be able to use this questionnaire to examine the effectiveness of SEL initiatives.

Despite these important implications, this study has several limitations. Firstly, the reliability of the social-awareness and responsible decision-making dimensions were not found to be high. Secondly, the research sample included only Jewish students in grades 4 to 6 in demographic areas with average-to-high socioeconomic status. Finally, the convergent and the discriminant validity analysis was conducted only with SDQ. Further research in these areas is clearly needed. While the initial steps have been taken to develop and validate a self-report SEL questionnaire in Israel, future studies should continue investigating the questionnaire. For example, they could examine how the SEQ (G4-6) compares to other instruments to strengthen its predictive validity. In addition, future studies could facilitate better generalisability of the questionnaire by administering it among different populations such as students in other age groups, students from regions with low socioeconomic status, and students from Arab society.

This research study has validated a new self-report questionnaire to evaluate developmentally and culturally appropriate social and emotional competencies in a non-Western context. Such a tools helps to improve understanding of what students in grades 4-6 can be expected to know and do in relation to SEL. It also contributes to the creation of a common language among educators and accurate measurement for researchers and school staff implementing and evaluating SEL interventions. We hope that the theoretical structures found to be valid in this questionnaire will serve as a theoretical base for future interventions aimed to develop developmental SEL standards for this age group suitable to the Israeli culture.

References

Anthony, C. J., Elliott, S. N., DiPerna, J. C., & Lei, P. W. (2020). Multirater assessment of young children's social and emotional learning via the SSIS SEL Brief Scales–Preschool Forms. *Early Childhood Research Quarterly, 53,* 625–637. https://doi.org/10.1016/j.ecresq.2020.07.006

Arbuckle, J. L. (2020). Amos (Version 27.0) [Computer Program]. IBM SPSS.

Assessment Work Group. (2019). *Student social and emotional competence assessment: The current state of the field and a vision for its future.* Collaborative for Academic, Social, and Emotional Learning. https://casel.org/casel-gateway-student-sel-competence-assessment/?view=true

Barnes, S. P., Bailey, R., & Jones, S. M. (2021). Evaluating the impact of a targeted approach designed to build executive function skills: A randomized trial of brain games. *Frontiers in Psychology, 12,* 1–21. https://doi.org/10.3389/fpsyg.2021.655246

Belfield, C., Bowden, A. B., Klapp, A., Levin, H., Shand, R., & Zander, S. (2015). The economic value of social and emotional learning. *Journal of Benefit-Cost Analysis*, *6*(3), 508-544. https://doi.org/10.1017/bca.2015.55

Benbenishty, R., & Friedman, T. (eds.). (2020). *Social and Emotional Skills Cultivation in the Education System: A summary of the proceeding of the expert committee, status report and recommendation.* Center for Knowledge and Research in Education, Israel Academy of Sciences and Humanities. http://education.academy.ac.il/SystemFiles/SEL-ENG.pdf

Bowman, N., & Hill, P. (2011). Measuring how college affects students: Social desirability and other potential biases in college student self-reported gains. *New Directions for Institutional Research, 150,* 73–85. https://doi.org/10.1002/ir.390

Brydon-Miller, M., Kral, M., & Ortiz Aragón, A. (2020). Participatory action research: International perspectives and practices. *International Review of Qualitative Research, Special Issue 13*(2), 103-111. https://doi.org/10.1177/1940844720933225

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal*, *14*(3), 464–504. https://doi.org/10.1080/10705510701301834

Collaborative for Academic, Social, and Emotional Learning (CASEL). (2015). *Effective Social and Emotional Learning Programs Middle and High School Edition*. CASEL.

Collaborative for Academic, Social, and Emotional Learning (CASEL). (2022). *What is the CASEL Framework?* CASEL. https://casel.org/fundamentals-of-sel/what-is-the-casel-framework/#:~:text=A-framework-creates-a foundation, advance-students'-learning-and-development

Demirci, Z. A., Bıçakcı, M. Y., & Uysal, B. (2022). Investigation of the effect of social emotional learning on peer relationships of adolescents. *Journal of Education and Future, 21,* 1–13. https://doi.org/10.30786/jef.789061

Denham, S. A. (2018). Keeping SEL developmental: The importance of a developmental lens for fostering and assessing SEL competencies. *Frameworks Briefs, 1(2),* 127–152. https://casel.org/casel-resources-keeping-sel-developmental

Dermody, C., & Dusenbury, L. (2022, April). *2022 Social and Emotional Learning State Scorecard Scan.* Collaborative for Academic, Social, and Emotional Learning. https://casel.org/2022- state-scan/?view=true

Duckworth, A. L., & Yeager, D. S. (2015). Measurement matters: Assessing personal qualities other than cognitive ability for educational purposes. *Educational researcher, 44*(4)*,* 237–251. https://doi.org/10.3102/0013189X15584327

Dusenbury, L., Newman, J., Weissberg, R. P., & Mart, A. (2011). *State learning standards to advance social and emotional learning: The state scan of social and emotional learning standards, preschool through high school.* CASEL.

Dusenbury, L., Weissberg, R. P., Goren, P., & Domitrovich, C. (2014). *State Standards to Advance Social and Emotional Learning: Findings from CASEL's State Scan of Social and Emotional Learning Standards, Preschool through High School, 2014.* CASEL.

Eklund, K., Kilpatrick, K. D., Kilgus, S. P., & Haider, A. (2018). A systematic review of state-level social–emotional learning standards: Implications for practice and research. *School Psychology Review, 47*(3), 316–326. https://doi.org/10.17105/SPR-2017.0116.V47-3

Goodman, A., Lamping, D. L., & Ploubidis, G. B. (2010). When to use broader internalising and externalising subscales instead of the hypothesised five subscales on the strengths and difficulties questionnaire (SDQ): data from British parents, teachers and children. *Journal of Abnormal Child Psychology, 38,* 1179–1191. https://doi.org/10.1007/s10802-010-9434-x

IBM Corp. (2020). *IBM SPSS Statistics for Windows* (Version 27.0). IBM Corp.

Jones, S. M., Bouffard, S. M., & Weissbourd, R. (2013). Educators' social and emotional skills vital to learning. *Phi Delta Kappan, 94*(8)*,* 62–65. https://doi.org/10.1177/003172171309400815

Kanopka, K., Claro, S., Loeb, S., West, M. R., & Fricke, H. (2020). *Changes in Social emotional learning: Examining student development over time* (Working Paper). Policy Analysis for California Education (PACE).

Kaşıkcı, F., & Öğülmüş, S. (2023). Adolescent well being: Relative contributions of social emotional learning and microsystem supports. *Social Psychology of Education*, 1–18. https://doi.org/10.1007/s11218-023-09852-5

Kaspar, K. L., & Massey, S. L. (2023). Implementing social-emotional learning in the elementary classroom. *Early Childhood Education Journal*, *51*(4), 641–650. https://doi.org/10.1007/s10643-022-01324-3

Kline R. B. (2016). *Principles and Practice of Structural Equation Modeling* (4th ed.). Guilford Press.

Lee, J., & Junus, A. (2024). Differences and similarities in youth social-emotional competence measurement between North American and East Asian countries: Exploratory graph analysis using the OECD survey on social and emotional skills data. *Child Indicators Research, 17(1),* 57–79. https://doi.org/10.1007/s12187-023-10074-6

Lee, J., Shapiro, V. B., Robitaille, J. L., & LeBuffe, P. (2023). Measuring the development of social-emotional competence using behavioral rating scales in the context of school-based social and emotional learning. *Social and Emotional Learning: Research, Practice, and Policy, 2,* 100015. https://doi.org/10.1016/j.sel.2023.100015

Manzano, D. L. (2022). Examining the Interrater Reliability between Self-and Teacher Assessment of Students' Oral Performances. *International Journal of Language Testing, 12(2),* 128–144.

Marsh, H. W., Hau, Kit-Tai., & Wen, Z. (2004). In search of golden rules: comment on hypothesis-testing approaches to setting cutoff values for fit indexes and dangers in overgeneralizing Hu and Bentler's (1999) findings. *Structural Equation Modeling*, *11*(3), 320–341.

Martinez-Yarza, N., Santibáñez, R., & Solabarrieta, J. (2023). A systematic review of instruments measuring social and emotional skills in school-aged children and adolescents. *Child Indicators Research, 16*(4), 1475-1502.

Muñiz, R. (2020). Muddy sensemaking: Making sense of socio-emotional skills amidst a vague policy context. *Education Policy Analysis Archives, 28,* 114–114. https://doi.org/10.14507/epaa.28.5235

Pendergast, L. L., von der Embse, N., Kilgus, S. P., & Eklund, K. R. (2017). Measurement equivalence: A non-technical primer on categorical multi-group confirmatory factor analysis in school psychology. *Journal of School Psychology, 60,* 65-82.

Petrides, K. V., & Furnham, A. (2009). *Trait emotional intelligence questionnaire (TEIQue).* [Technical Manual]. London Psychometric Laboratory.

Sagie, N., Gleit, H., Heskia-Barad, I., & Kopelman-Rubin, D. (2024). *SEL Standards - Articulating Shared Developmentally Appropriate and Culturally Responsive SEL Standards at the Municipal Level* [Manuscript in preparation]. School of Psychology, Reichman University.

Richter, J., Sagatun, Å., Heyerdahl, S., Oppedal, B., & Røysamb, E. (2011). The strengths and difficulties questionnaire (SDQ)–Self-Report. An analysis of its structure in a multiethnic urban adolescent sample. *Journal of Child Psychology and Psychiatry*, *52*(9), 1002–1011. https://doi.org/10.1111/j.1469-7610.2011.02372.x

Scott, K. E., King, R. A., Cochrane, A., Kalish, C., & Shutts, K. (2023). Direct Assessments of Social Skills Can Complement Teacher Ratings in Predicting Children's Academic Achievement. *Journal of Cognition and Development, 24*(5), 735–759. https://doi.org/10.1080/15248372.2023.2216291

Temko, S., Smith, R., Nelson, B., Park, C., Bailey, R., Johna, J. F., Ferrans, S. D., & Jones, S. M. (2023). Responding to the field: Development of and findings from the PSS-SEL Toolbox. *Social and Emotional Learning: Research, Practice, and Policy, 2,* 100017.

Vugteveen, J., de Bildt, A., & Timmerman, M. E. (2022). Normative data for the self-reported and parent-reported Strengths and Difficulties Questionnaire (SDQ) for ages 12–17. *Child and Adolescent Psychiatry and Mental Health*, *16*(1), 1–13. https://doi.org/10.1186/s13034-021-00437-8

Wallender, J. L., Hiebel, A. L., PeQueen, C. V., & Kain, M. A. (2020). Effects of an Explicit Curriculum on Social-Emotional Competency in Elementary and Middle School Students. *Delta Kappa Gamma Bulletin, 86*(3), 32–43.

Zhou, P. K. (2023). Influence of Social Emotional Learning Curriculum on Preschoolers' Mental Health in School-Setting: A Mixed-Methods Study. *Psychology*, *14*(12), 1793–1809. https://doi.org/10.4236/psych.2023.1412105

Appendix 1 - Study 2: Standardized Factor Loadings for the CFA Model

Item	Loading
Relationship skills	
1. Even when I don't agree with someone, I express my opinion clearly and in a manner that will not insult or hurt others.	0.70
2. During group activities, I know how to explain what other group members did and how they contributed to the group's success.	0.61
3. During a disagreement or argument, I also listen to the other side.	0.63
4. When working in a group, I make an effort so the group will succeed. I participate, and I also let others express themselves (e.g., I read the directions out loud, make suggestions, and listen to other group members' ideas).	0.69
5. I contribute socially (e.g., I remind everyone to phone a sick classmate who was absent from school).	0.66
6. To end a disagreement nicely, I propose solutions and also accept solutions that the other side proposes.	0.69
Social-awareness	
7. When I argue with a friend, I am able to describe how both my friend and I feel (e.g. I am angry, and my friend is insulted).	0.63
8. When I hear or read a story or when I see a movie, I know if the characters are in distress.	0.55
9. I know when a specific behaviour harms other people, animals, or property.	0.64
10. I understand how other children feel in different situations (e.g., when I see a child sitting alone in class and not looking at anyone, I know that child feels sad).	0.68
11. I know how a certain situation will cause other children to feel (e.g., I know that if I give friends something they like to eat, they will be happy).	0.64
Responsible decision-making	
12. I don't participate in risky situations that could harm me or others (e.g., I don't participate when there is hitting; if someone sends me a personal picture, I don't share it with others).	0.73
13. I oppose peer pressure that could hurt me or others (e.g., if a child in my class is ostracised, I try to stop it or tell a teacher about it).	0.61
14. I don't participate in behaviour that hurts other people, animals, or property and I try to put a stop to such behaviour (e.g., I go to a party even if I don't really want to so that I don't insult the person who invited me; I don't participate in shaming or I report it to an adult).	0.64
Self-management	
15. I succeed in setting goals for myself that are important to me to achieve (e.g., preparing a presentation on a topic I researched or being accepted to a specific committee).	0.60
16. I'm working on improving in some areas (e.g., I practise dance moves to be a better dancer; I practise playing computer games with a friend who is more skilled than me; I practise scoring goals with a friend).	0.69
17. I know what parts of achieving my goals will be difficult and how to cope with this difficulty (e.g., when I want to improve my grade in literature, I'm aware it will be hard for me to study alone, so I arrange to study with a friend).	0.69
18. I know how I succeeded in achieving a goal I set for myself (e.g., I succeeded in improving a video that I made by reviewing and checking it several times).	0.60
19. I know what helps me learn and what is less helpful (e.g., I need quiet or music to concentrate; it helps me to study with a friend).	0.56
Emotion recognition	
20. I know how I feel in different situations (e.g., I noticed that I'm excited when I answer a question in class).	0.49
21. Sometimes, I feel multiple emotions at once (e.g., I'm excited and scared).	0.62
22. When I feel a physical sensation, I know what emotion it is related to (e.g., when I'm stressed, my stomach hurts).	0.53
23. I know how my emotions are related to my behaviour (e.g., when I feel sad, I sit alone in my room).	0.60