



# A Systematic Review of Instruments Measuring Social and Emotional Skills in School-Aged Children and Adolescents

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## Abstract

Strengthening social and emotional skills can be particularly relevant concerning the emerging skills need as it yields benefits for individuals' successful development. A growing body of research suggests that social and emotional competences are associated with well-being and positive life and academic outcomes. Despite the notable benefits of social and emotional skills, assessment tools are still scarce or target specific risk and problematic behaviours. This systematic review seeks to address this gap and identify instruments measuring social and emotional skills for students in elementary through secondary education. This review also aims to describe the study characteristics and key features of the identified instruments and to assess the extent to which the instruments comprehensively evaluate the five Collaborative for Academic, Social, and Emotional Learning (CASEL) areas of competence. A systematic search of the literature was carried out in Scopus, Web of Science and ERIC databases. This review resulted in the identification of 25 unique assessments over a 20-year period, reported on the basis of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Our results suggest a rapid growth and notable advancements of social and emotional skills assessment systems and demonstrate the direct influence of the CASEL framework. Our results also show that a combination of multi-method and multi-informant assessment should be employed to effectively assess social and emotional skills. Thus, this paper contributes to support school-based practitioners and psychologists in their efforts to lead social and emotional skills instruction and assessment in routine educational practice.

**Keywords** Social and emotional skills · Instrument · Measurement · Primary education · Secondary education

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## 1 Introduction

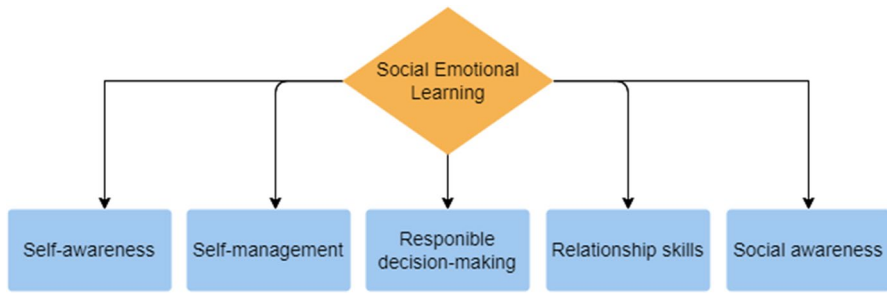
Ongoing megatrends such as technological breakthrough, climate change and ageing populations are shaping today's well-functioning society and future-fit skills are certainly gaining increasing popularity within the school setting (Elliott et al., 2018; OECD, 2015). Strengthening social and emotional skills can be particularly relevant concerning the emerging skills need as it yields benefits on different spheres of individuals' life (Chernyshenko et al., 2018; Pancorbo et al., 2020). Until recently, social and emotional competences were not regarded as of vital importance unless individuals' accounted for deficiencies or problematic behaviours in this area. However, increasing attention has been paid to social and emotional skills' conceptualization and measurement tools over the past decade in children of different ages (Coryn et al., 2009; DeRosier & Thomas, 2018; Ee, 2014; Merrell et al., 2011; Thomson et al., 2018). To this end, schools have started implementing intervention programs targeting social and emotional skills (Collaborative for Academic, Social, and Emotional Learning [CASEL], 2022a; Mestre, 2020).

### 1.1 Conceptualization of social and emotional skills

Social and emotional competences have been conceptualized and termed in multiple ways by individual research studies. This amalgam of different terms ranges from emotional intelligence by Salovey & Mayer (1990) or emotional literacy by Park et al. (2003) to Social Emotional Learning (SEL) by CASEL. The latter framework has been extensively researched and serves a reference framework for conceptualizing and categorizing social and emotional competences. CASEL covers most critical aspects of social and emotional skills outlined in major theoretical models and it is widely accepted by educators and scholars across the educational spectrum as a comprehensive framework of children's and adolescents' social and emotional skills (Gresham et al., 2020; Zhou & Ee, 2012). CASEL defines SEL as the process through which individuals acquire the set of skills, attitudes and knowledge needed "to develop healthy identities, manage emotions and achieve personal and collective goals, feel and show empathy for others, establish and maintain supportive relationships, and make responsible and caring decisions" (CASEL, 2022b, para. 1).

### 1.2 The five core CASEL competences

There is considerable variability on the number and nature of the dimensions underlying social and emotional skills that often creates complexity and confusion in its conceptualization and nature of assessment (Abrahams et al., 2019; LeBuffe et al., 2018). Although there is a lack of agreement on the components of social and emotional skills, there is substantial evidence that these skills can be grouped under the umbrella of the five CASEL areas of competence. CASEL proposes a framework of social and emotional skills consisting of five comprehensive and interrelated competences: self-awareness, self-management, responsible decision-making, relationship



**Fig. 1** The five CASEL areas of competence

skills and social awareness (see Fig. 1). For the present purposes, we adopt a conceptualization of social and emotional skills as a complex, multidimensional construct that integrates these five components.

Self-awareness refers to the ability to recognize and identify one's emotions, thoughts and beliefs as well as to understand how they influence behavior and actions. This includes identifying one's strengths and weaknesses as well as possessing self-confidence and a sense of purpose. Self-management refers to the ability to accurately regulate one's emotions, thoughts and beliefs in a variety of situations. This include, for instance, stress management, organizational skills, self-discipline and self-motivation. The effective management of emotions can play a crucial role when attempting to achieve personal and collective goals (CASEL, 2023).

Social awareness relates primarily to taking the perspective of others, demonstrating empathy and utilizing social support when needed. It emphasizes the ability to understand other's emotions and respond accordingly. Showing awareness for other people's emotions, thoughts and beliefs can lead to a better understanding and agreement between individuals. In addition to that, relationship skills refer to the ability to establish and maintain positive and healthy friendships with diverse individuals. This dimension highlights the importance of interacting with peers for the individual's integral development. This include, for example, clear communication, active listening, handling conflict constructively and cooperation (Elliot et al., 2018; Mantz et al., 2018; Zhou & Ee, 2012).

Responsible decision-making includes skills that allow individuals to make appropriate and respectful decisions about one's behaviours and interactions with others. It refers to considering ethical standards, societal factors and safety issues when making choices. It emphasizes the process of evaluating the situation, analyzing the potential choices and anticipating the possible consequences for the individual and their environment. This includes, for instance, problem solving, open-mindedness and critical thinking (CASEL, 2023; Gresham et al., 2020).

### 1.3 Empirical evidence supporting social and emotional skills

Evidence suggests the relevance of social and emotional skills for individuals' successful development in school and in life. Past empirical studies and meta-analyses

have demonstrated the significant and positive association between social and emotional competences and students' academic performance. Social and emotional competences positively predicted pupils' academic achievement, including reading, mathematics, and science outcomes in fourth-grade and fifth-grade students (Wang et al., 2019). Amongst other influential variables, decision-making skills appeared to be the most crucial variable in predicting students' academic performance in secondary student populations (Portela-Pino et al., 2021). In addition to that, CASEL found notable benefits of SEL in students' academic outcomes from a meta-analysis of over 200 school-based intervention programmes. Students participating in SEL programmes scored 11 percentile points higher in achievement test scores (Durlak et al., 2011).

A growing body of research suggests that social and emotional skills are also associated with well-being and positive life outcomes. Taylor et al. (2017) determined significant positive effects of SEL intervention on indicators of well-being such as fewer behavioural problems, less emotional distress and less drug use. Results from a latent profile analysis by Samela-Aro & Upadyaya (2020) showed that high-school students who reported higher levels of social and emotional skills were more likely to belong to the engaged group of students rather than belonging to the stressed or burned out groups. The salient role of social and emotional skills was also highlighted in a study conducted by the World Bank, suggesting its notable benefits in labour market success (Guerra et al., 2014). The considerable positive impact of promoting social and emotional skills is therefore concluded as well as its complementary nature to promoting cognitive development in school-aged children and adolescents.

#### 1.4 The present study

In spite of the notable benefits of SEL, instruments measuring social and emotional skills are still scarce (Chernyshenko et al., 2018). Most of the instruments are diagnostic in nature or target specific risk and problematic behaviours (Denham, 2009; Esen-Aygun & Sahin-Taskin, 2017; Malti et al., 2018). Others evaluate specific school-based intervention programs or assess social and emotional competences as part of a large-scale survey (Coryn et al., 2009). Although the multifaceted nature of social and emotional skills has been stressed across the literature, measurement instruments usually target only one or two core competences and fail to assess the five CASEL areas of competence (Crowder et al., 2019; Doromal et al., 2019; Greshman, 2020). In many cases, payment for licensing fees is required to apply these assessment tools (Lawson et al., 2019). Accordingly, the need to engage in investigations of psychometrically sound and effective assessment tools and systems is determined.

To date, efforts to undertake a consolidated review of instruments measuring social and emotional skills is limited. This paper seeks to address this gap in the literature to support school-based practitioners and psychologists in their ongoing efforts to lead social and emotional skills instruction and assessment in routine educational practice. The main objective of this systematic review is to identify instruments

measuring social and emotional skills for students in elementary through secondary education. The specific research objectives are threefold. First, we aim to describe the study characteristics of the research papers included in this review. Second, we also aim to identify and synthesize the key features of the identified instruments measuring social and emotional skills. Third, we aim to assess the extent to which the instruments comprehensively evaluate the five CASEL areas of competence.

## 2 Methodology

A systematic literature review was performed to address the research objectives. The present study is reported on the basis of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Higgins et al., 2022; Moher et al., 2009), ensuring a comprehensive and transparent review. An initial search of the existing systematic reviews of the instruments available to assess social and emotional skills was conducted in the Cochrane Library of Systematic Reviews as well as in the International Prospective Register of Systematic Reviews (PROSPERO) and no records were found. The review protocol for the present systematic review was registered with OSF Registries. No ethical approval was required for this study.

### 2.1 Search Strategy

A systematic search of the literature was carried out in Scopus, Web of Science (WoS) and Education Resources Information Center (ERIC) databases up to 2 November 2021 with no language or date limitations to identify existing instruments measuring social and emotional skills. The search terms were selected using the PICO strategy (Landa-Ramírez & Arredondo-Pantaleón, 2014; Richardson et al., 1995) and grouped into three main conceptual clusters: population, intervention and outcomes (see Table 1).

The first conceptual cluster consists of search terms that capture the educational stage of the target individuals. Primary and secondary school-aged students were selected for the analysis given that the assessment of social and emotional skills is nearly a universal practice at preschool level for evaluating developmental progress. Search terms in the second cluster refer to the different types of measurement systems identified in the research methodology. The term “screening” is included given the nature of some instruments of social and emotional skills developed for universal and targeted screening in large-scale studies. Concerning the third conceptual cluster, a search of the term social and emotional skills and its variants was performed. Deletion of the hyphen and inclusion of a space produced several additional results.

Based on the CASEL framework, social and emotional skills consists of five comprehensive and interrelated areas of competence (i.e. self-awareness, self-management, responsible decision-making, relationship skills and social awareness). However, these specific competences were excluded from the search strategy as they resulted in incomplete instruments assessing solely one or two core competences and not precisely addressing the construct of social and emotional skills. Student

**Table 1** Search terms grouped into three main conceptual clusters according to the PICO strategy

PICO	[1] Population	[2] Intervention	[3] Outcomes
Key words	"elementary education" OR "elementary school*" OR "elementary student*" OR "elementary grad*" OR "primary education" OR "primary school*" OR "primary student*" OR "primary grad*" OR "secondary education" OR "secondary school*" OR "secondary student*" OR "secondary grad*" OR "middle school*" OR "middle-school*" OR "high school*" OR "high-school*" OR student*	instrument* OR measur* OR scale* OR questionnaire* OR survey* OR assess* OR screening	"social-emotional skills" OR "social-emotional development" OR "social-emotional competence*" OR "social-emotional learning" OR "social emotional skills" OR "social emotional development" OR "social emotional competence*" OR "social emotional learning" OR "social and emotional skills" OR "social and emotional development" OR "social and emotional competence*" OR "social and emotional learning" OR "social-emotional" OR "social emotional" OR "social and emotional" OR "student strength*" OR "student asset*"
Search	Scopus: TITLE [3] AND TITLE-ABS [2] AND TITLE-ABS-KEY [1] WoS: TI [3] AND AB [2] AND TS [1] ERIC: TI [3] AND AB [2] AND AB [1]		

strengths and assets were included amongst the search terms to incorporate strength-based approaches to assessment of social and emotional skills, being a guiding principle of the present theoretical framework.

The Boolean search modifier “\*” was employed to cover variant spellings of the search terms. Furthermore, the Boolean operators “AND” and “OR” were used to group all the search terms in a single search in each of the databases. The “OR” operator was employed to combine search terms within a conceptual cluster and “AND” was placed between the three clusters to include only results referring to the population, intervention and outcomes of interest. The search strategy combines title, abstract and keywords field tags.

## 2.2 Eligibility criteria

The systematic review included published research articles describing the development of an instrument that measures social and emotional skills and/or assesses its psychometric properties. Research studies were not expected to have a predetermined definition of social and emotional skills to be selected for review given the multiple conceptualizations in the literature. If one of the instruments was detailed in more than one publication, the publication reporting the most complete information on the original instrument was retained. Additionally, instruments aimed at primary and/or secondary school-aged students were included. Excluded studies were those reporting on an instrument aimed at students with special educational needs and non-peer reviewed literature. Only peer-reviewed contributions published in English in the 20 years prior to the search were eligible for review. The grey literature was not considered for review. Table 2 shows the Inclusion Criteria (IC) and Exclusion Criteria (EC) employed to refine the results obtained.

## 2.3 Study selection

The search initially resulted in a pool of 1460 articles from the databases: 527 studies in Scopus, 501 studies in WoS and 432 studies in ERIC. All the articles were exported to Mendeley and duplicates were removed ( $n=634$ ). The result yielded a total of 826 research articles for review.

The three authors independently screened the search results based on a review of the titles and abstracts and against the inclusion and exclusion criteria. Studies that did not describe the development of an instrument and/or assess its psychometric properties were excluded ( $n=402$ ); publications that did not report on the construct of social and emotional skills ( $n=63$ ); research articles that did not refer to primary and/or secondary education ( $n=122$ ); research articles that were aimed at special education ( $n=83$ ); studies that are not published in a peer-reviewed journal ( $n=57$ ). The results of this first screening yielded a total of 99 full texts for analysis. Fig. 2 illustrates the flow of information through the different selection phases.

Subsequently, the full text of these studies was retrieved and screened for eligibility. The inclusion and exclusion criteria were applied independently by the three authors, leading to a final selection of 25 journal studies for this systematic review.

**Table 2** Review question and inclusion and exclusion criteria employed

Review question	What instruments (intervention) are available to measure social and emotional skills (outcomes) in primary and secondary student populations (population)?	
	Inclusion criteria	Exclusion criteria
Population	Primary and/or secondary school-aged students	Not attending primary and/or secondary education (Preschool, Higher Education or Adult Education) Students with special educational needs
Intervention	Studies focused on the development of an instrument and/or assessment of its psychometric properties.	Studies focusing on programme development and evaluation, correlational associations, clinical trials, theoretical reviews and group comparison studies.
Comparator	Not applicable	Not applicable
Outcomes	Outcomes related to social and emotional skills.	Outcomes related to problem or risk behaviours (e.g. social, emotional and behavioural difficulties, social emotional maladjustment, emotional behaviour concerns) and other non-cognitive outcomes (character, school readiness etc.).
Study design	Peer reviewed studies	Non-peer reviewed literature

Any questions or disagreements during the screening procedure were resolved by a consensus-based discussion between the three review authors.

## 2.4 Data collection process

Data collection forms were developed to extract relevant data and capture key characteristics from the identified studies. Information that was coded included the name of the instrument, the year in which the instrument was developed or validated, the purpose of the instrument, the type of assessment method (i.e., self-reported scale, multi-level rubrics or performance assessment), the total number of items, the domains assessed (i.e., relationship skills, self-management, social awareness), the grade level of the student sample, the psychometric data, the item format (i.e., Likert-type rating scale, situational judgment items, forced-choice items) and who completed the assessment (i.e., student, parent or teacher). Data items were identified for each of the instruments. In case of an item not being reported, 'Not reported' was registered. All articles were crosschecked by three authors to verify the accuracy of the coding.

## 2.5 Quality Appraisal

Two different appraisal tools were employed to guarantee the methodological quality of the study as well as an unbiased selection of publications. Authors independently appraised each study applying the checklists for use with systematic reviews by Joanna Briggs Institute (JBI) (Lockwood et al., 2015) and the Critical Appraisal Skills Programme (CASP, 2021), consisting of 10 questions each and addressing

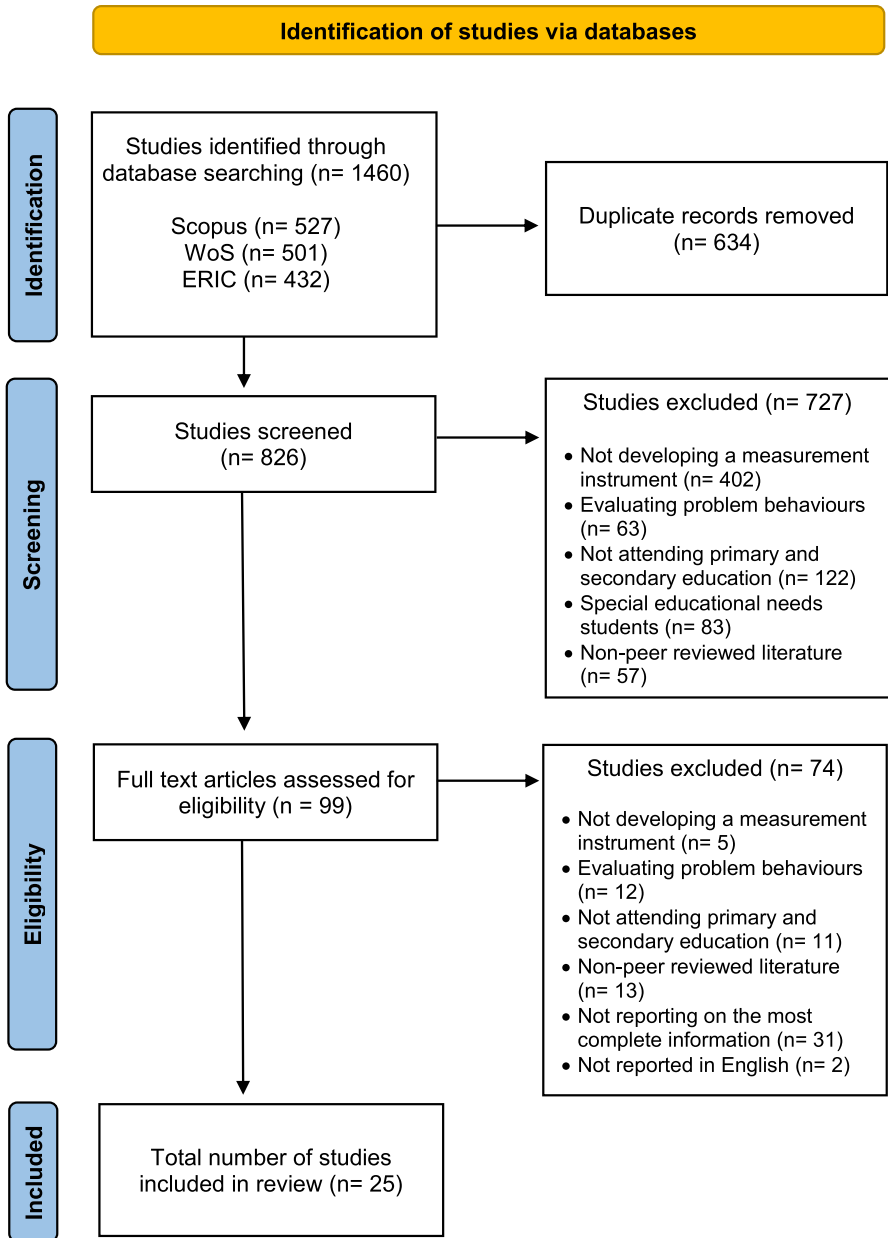


Fig. 2 PRISMA flow diagram of information through the different selection phases

the research objectives, method, results and impact of the study. For both of the appraisal tools, each question was answered as yes (met the criteria), no (did not meet the criteria) or unclear. In some instances, not applicable “NA” was also provided as an option. The 25 selected studies met the criteria and are considered acceptable to the aims of the present systematic review.

### 3 Results

This section reports the results of the systematic review in line with the initial research objectives. First, the study characteristics of the research papers included in this review are described. Second, the key features of the identified instruments measuring social and emotional skills are detailed. Finally, the extent to which the identified instruments comprehensively evaluate the five CASEL areas of competence is examined.

#### 3.1 Study characteristics

Across all 25 studies, the large majority (14; 56%) were conducted in the United States of America (USA). When considering other geographic locations, two studies were conducted in Singapore (8%), Spain (8%) and Brazil (8%). There is also evidence in Romania, Portugal, Australia, Turkey and Canada, comprising each 4% of the total studies. In the course of 20 years prior to the search, all the identified studies were published between 2009 and 2020. No published papers were found describing the development and validation of an instrument assessing students' social and emotional skills preceding 2009 (see Fig. 3). An overall steep increase is pinpointed from 2017 until 2020, considering that more than half of the works were published in this interval ( $n = 15$ ; 60%). However, a decline is observed in the following year 2021, equalling the number of identified studies to zero.

Among the 25 analyzed studies, more than half of the studies (14; 56%) involved a primary focus on developing and validating an instrument to measure students' social and emotional competences. In addition to that, nine of the identified studies (36%) targeted solely the validation of an already existing instrument or any of its forms (short form, student form etc.). Two of the studies (8%) reviewed the development, validity evidence and application of an already existing instrument. Accordingly, the large majority of the studies (23; 92%) are based on original research while two of the studies (8%) do not report original research but summarize the findings of an existing instrument.

The average sample size amounted to  $N = 19,961$  participants (Standard Deviation (SD) = 76,758.87; Median (Mdn) = 1,351; range, 268–378,456). The age ranges of participants varied significantly across studies. The most frequent age ranges were 5–9, 6–18, 8–10, 8–11, 10–18 and 11–19, and each comprised 8% of the studies reporting data on participant age. Eight years was the most recurring lower age limit across participant age ranges (7; 28%). On average, females made up 49.5% of the student population across identified studies. A majority of the

studies reported on the participants' ethnicity (17; 68%) and included participants from diverse ethnic backgrounds. A detailed overview of the study characteristics of research papers included in this review is included in Table 3.

### 3.2 Instruments measuring social and emotional skills

Among the 25 analysed instruments, more than half (14; 56%) developed self-report rating scales of social and emotional skills (see Fig. 4). In addition to the self-report forms, four identified instruments (16%) developed a cross-informant system that also included teacher and parent rating forms (i.e. multirater scale). Two of the instruments (8%) solely developed adult completed behaviour rating scales for parents or teachers/staff. Other analysed instruments (3; 12%) validated performance-based assessment types or developed multi-level rubric systems (2; 8%). Across the 25 instruments, the large majority (22; 88%) were identified as indirect assessment methods gathering data through means other than actual samples of student work. Three of the instruments (12%) involved assessing the actual samples of student work and can be considered as direct assessment methods.

The instruments varied depending on who was responsible for completing the assessment in each study. Assessments completed by the student (i.e., self-report) were most common (20; 80%), followed by teacher informants (6; 24%). Other respondents included the parent or caregiver (2; 8%). Regarding the grade level of the student sample, the large majority of the instruments were applicable in upper elementary (20; 80%) and middle school grade levels (18; 72%). Around half of the

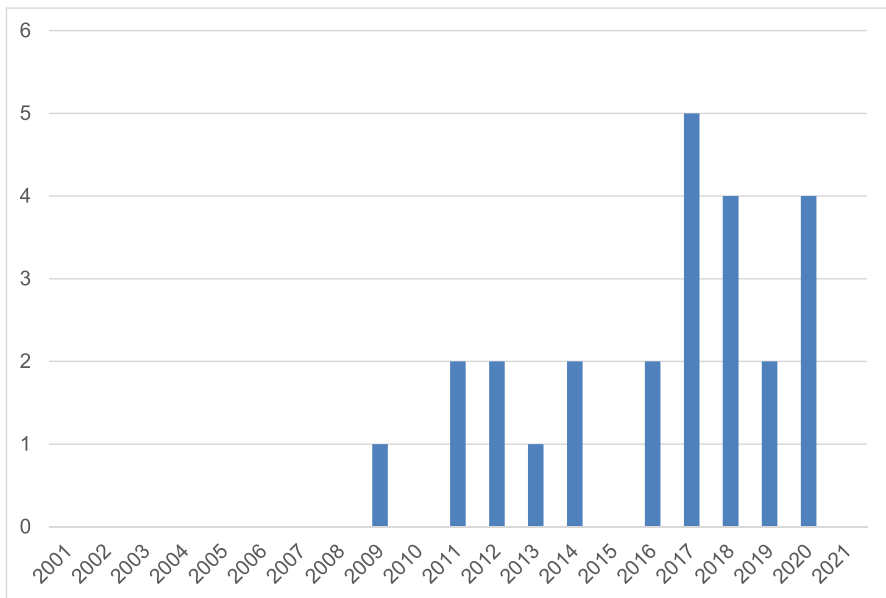


Fig. 3 Distribution over time of the number of instruments developed or validated

identified instruments could be employed across high school grades (52%). However, solely ten instruments (40%) were applicable in lower elementary grade levels.

The number of items per instrument varied greatly, ranging from 5 to 103 items (Mean = 41.1). The most frequent number of items across the instruments was 25 (3; 12%). Concerning response options, 17 instruments reported the use of Likert Type scales. Nine of the instruments using Likert Type scales reported using a 4-point scale, six reported using a 5-point scale, one reported using a 3-point scale and one other reported using a 6-point scale. Other instruments reported using innovative item types such as situational judgement items (2; 8%) and forced-choice items (2; 8%). Across the identified instruments, multi-level rubrics (2; 8%) employed 5-point and 7-point level descriptors as their response options. Other instruments reported using behaviorally anchored rating scale (1; 4%) and open-ended response options (1; 4%).

Additionally, psychometric data regarding each instrument's model fit, measurement invariance, reliability and validity were reported when available. Psychometric data were available for 24 of the 25 identified instruments (96%). A majority of the studies (17; 70%) provided data on model fit assessment. Across the identified instruments, model fit was principally analyzed using Confirmatory Factor Analysis (CFA) (8; 33%) or using a combination of CFA and Exploratory Factor Analysis (EFA) (6; 25%). Hardly any studies (1; 4%) analyzed model fit using EFA independently, Principal Components Analysis (PCA) (1; 4%) or Q-matrix validation (1; 4%). Data describing measurement invariance was only available for five of the instruments (20%) and it was performed across gender, age groups or participants' race/ethnicity.

Most of the studies (18; 75%) reported on instruments' internal consistency using Cronbach's alpha ( $\alpha$ ) coefficient (16; 66%) or McDonald's omega ( $\omega$ ) coefficient (2; 8%). Concerning other reliability measures, seven studies (29%) reported on test-retest reliability and three (12%) on interrater reliability. Across the identified instruments, criterion validity was most frequently provided (12; 50%) assessing correlations between the measure and one or more criterion variables. In addition to that, seven studies (29%) reported data on construct validity. Few studies assessed incremental validity (1) and non-statistical content validity (1), comprising each 4% of the studies reporting data on psychometric data. See Table 4 for a detailed description of the key features of the identified instruments measuring social and emotional skills are detailed.

### 3.3 Alignment with CASEL theoretical framework

Regarding the domains targeted by each of the identified instruments, the five areas of competence addressed by CASEL (2022b) were employed. As initially noted, CASEL proposes a framework of social and emotional skills consisting of five domains: self-awareness, self-management, responsible decision-making, relationship skills and social awareness. These domains were targeted to a varying degree by each of the identified instruments (see Fig. 5).

**Table 3** Study characteristics of research papers included in the review

First author (Year) Country	Study purpose	Sample characteristics
Aurora-Adina, 2011 Romania	Develop an instrument to measure social emotional skills and test its validity and fidelity.	N = 274, Age range = 11-19 56.5% female
Coelho et al., 2016 Portugal	Test the factor structure of a short form of the Social and Emotional Competences Evaluation Questionnaire –Teacher’s Version (QACSE-P).	N = 657, Age range = 8-16 (M= 11.3, SD= 1.8) 46.3% female
Coryn et al., 2009 USA	Develop and evaluate a measurement device to assess elementary-aged students’ social-emotional learning needs.	N = 633, Age range = 8-12 50% female 38% Caucasian, 31% African American, 14% Other, 11% Hispanic, 6% American Indian
Crowder et al., 2019 USA	Provide validity evidence for the Washoe County School District social-Emotional Competency Assessment (WCSD-SECA).	N = 6,581, Age range = 10-17 49% female 45% non-Hispanic White, 40% Hispanic
DeRosier & Thomas, 2018 USA	Establish the criterion validity of Zoo U’s game-based social emotional skills assessment.	N = 270, Age range = 8-10 43% female 58% Caucasian, 24% African American, 18% Multiracial
Ee, 2014 Singapore	Generate a new measure based on the Defining Issues Test (DIT) to assess the social-emotional competence of secondary school students.	N = 802, Age range = 12-14 (M=13.71) 46.5% female
Elliott et al., 2018 Australia	Design and validate a universal screening measure called Social Emotional Learning Screening Assessment (SELA).	N = 268, Age range = 5-9 46.3% female 11.6% Aboriginal, Torres Strait Islander
Esen-Aygun & Sahin-Taskin, 2017 Turkey	Develop a valid and reliable scale of social-emotional learning.	N = 439, Age range = 8-10
Ferrández et al., 2012 Spain	Study the validity of the Emotional Quotient Questionnaire for Youth Version (EQ-i:YV) in a Spanish sample.	N = 1655, Age range = 6-18 (M=11.10, SD=3.11) 47.1% female
Furlong et al., 2014 USA	Report on the preliminary development and validation of the Social Emotional Health Survey (SEHS).	N = 4189, Age range = 13-18 (M=15.1, SD=1.7) 51% female 73% Hispanic
Gresham et al., 2020 USA	Evaluate the psychometric properties of the scores from the Social Skills Improvement System Social Emotional Learning Edition Rating Forms (SSIS SEL RF).	N = 685, Age range= 3-18 51.2% female 73.8 Caucasian, 10.8% African American, 8.9% Hispanic, 6.3% Other
Ji et al., 2013 USA	Study the psychometric properties of the Social-Emotional and Character Development Scale (SECDs).	N = 593, Age range = 8-11 54% female 54% African American, 30% Hispanic, 11% Caucasian, 5% Asian

**Table 3** (continued)

First author (Year) Country	Study purpose	Sample characteristics
Kilgus et al., 2020 USA	Develop and validate the Intervention Selection Profile (ISP)-Skills.	N = 977, Age range = 5-12 (M=8.39, SD=1.9) 46% female 45% Caucasian, 31% African American, 17% Hispanic, 4% Other, 2% Multiracial
LeBuffe et al., 2018 USA	Discuss the development and psychometric properties of the DESSA and DESSA-Mini for assessing student social-emotional competence.	N = 2494, Age range = 5-14 50.5% female 82% Hispanic, 72.2% Caucasian, 22.3% African American, 3% Asian, 1.9% American Indian, 0.6% Native Hawaiian
Malti et al., 2018 USA	Introduce the Holistic Student Assessment tool and provide further evidence for the psychometric properties of its self-report scale.	N = 5946, Age range = 10-18 (M=13.16, SD=1.92) 49% female
Mantz et al., 2018 USA	Develop a valid and reliable self-report instrument that assesses students' social-emotional competencies.	N = 32,414, Age range = 8-18 50.8% female 47% Caucasian, 26.1% African American, 12.9% Hispanic, 10.4% Multi-racial, 3.7% Asian
McKown, 2019 USA	Evaluate the psychometric properties and measurement invariance of the SELweb assessment tool.	N = 4,419, Age range = 5-9 (M=7.5, SD=1.1) 50% female 44.8% Caucasian, 13% African American, 31.9% Hispanic, 5.7% Asian, 4.7% Other
Merrell et al., 2011 USA	Create a strength-based social-emotional assessment tool, explore the latent structure of its constructs and evaluate its psychometric properties.	N = 1673, Age range = 5-18 49.5% female 49% Caucasian, 19.1% African American, 18.6% Hispanic, 8.1% Asian, 3.1% Multiracial, 1.2% Other, 0.2% Native American
Murano et al., 2021 USA	Develop and validate innovative item types to measure social and emotional skills in elementary school children.	N = 1047, Age range = 8-11 53.3% female 59.1% Caucasian, 13.9% African American, 8.2% Multiracial, 3.2% Hispanic, 2.2% American Indian, 1.2% Asian, 0.5% Native Hawaiian
Pancorbo et al., 2020 Brazil	Develop rubrics for the social-emotional skills domains and assess their psychometric properties using IRT modelling.	N = 7404, Age range = 12-15 (M=13.0, SD=0.94) 48% female 70.7% Multiracial, 14.2% Caucasian, 6.9% Asian, 5.3% African American, 2.9% Indigenous
Primi et al., 2016 Brazil	Construct a comprehensive measure for large-scale studies in Brazilian schools and evaluate its psychometric properties.	N = 24,605, Age range = 10-18 41.8% female 40.4% Multiracial, 28.9% Caucasian, 21.1% African American, 5.9% Asian

**Table 3** (continued)

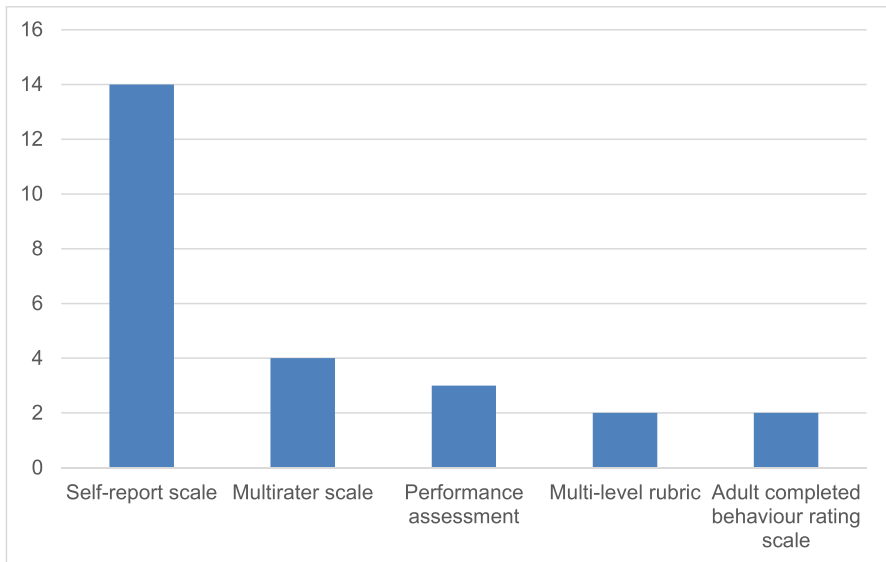
First author (Year) Country	Study purpose	Sample characteristics
Thomson et al., 2018 Canada	Discuss the conceptualization, development, validation and application of the Middle Years Development Instrument (MDI).	Age range = 9-12
West et al., 2018 USA	Provide an overview of CORE's School Quality Improvement system and present reliability and validity evidence from a 2015 field test.	N = 378,456, Age range = 9-18 5%0 female 71% Hispanic, 10% Asian, 10% Caucasian, 0.8% African American
Zhou & Ee, 2012 Singapore	Develop and validate a tool to measure children's and adolescents' social emotional competence and assess the effectiveness of SEL programs.	N = 444, Age range = 8-16 57.8% female 73% Chinese, 15.9% Malay, 6.1% Indian, 2.9% English, 2% Other
Zych et al., 2018 Spain	Design and validate the Social and Emotional Competencies Questionnaire in adolescents and young adults.	N = 2,139, Age range = 11-19 (M=13.79, SD=1.40) 50.9% female

The self-management domain was the most frequent domain across the instruments, addressed by all the identified instruments. The least frequent domain was responsible decision-making, targeted by 13 instruments and comprising 52% of the identified instruments. Table 5 illustrates the distribution of the five CASEL areas of competence across the instruments. It can be noted that 10 of the instruments (40%) addressed all five domains, while two instruments (8%) addressed only one or two domains respectively.

## 4 Discussion

The purpose of this systematic review was to identify instruments measuring social and emotional skills for students in elementary through secondary education. The present review resulted in the identification of 25 unique assessments over a 20-year period.

One of the primary findings of the current study is the growing popularity of social and emotional competences. Our results suggest a rapid growth and notable advancements of social and emotional skills assessment systems in recent decades. This is in line with the theoretical assumption that the need for reliable and valid measurement instruments increases with the upsurge of SEL research and programs (LeBuffe et al., 2018; Mantz et al., 2018; Murano et al., 2021; Thomson et al., 2018; Zhou & Ee, 2012). Based on the evidence reviewed, the majority of the identified studies were primary sources reporting on original research. There were also secondary sources synthesizing or discussing the findings of an already existing instrument, but these were scarce. Thus, the results of the present review were generally consistent with the primary study design for instrumentation purposes. In addition



**Fig. 4** Number of types of assessment methods developed or validated

to that, a majority of the studies included participants from diverse racial and ethnic backgrounds in their samples. This is in line with the hypothesis that instruments measuring social and emotional skills may benefit from a racially and ethnically diverse sample if cultural bias is to be avoided (Thomas et al., 2021).

The reviewed studies showed that the most frequently used assessment method was indirect assessment. Assessment types can be conceptualized into two main groups including direct and indirect assessments, and provide different information as well as different sources of error. While direct assessment may only monitor a small number of behaviors and require time for training (Naglieri et al., 2013), indirect assessment may contain measurement error in the form of participants' subjectivity (LeBuffe et al., 2018). Based on the evidence reviewed, the most frequently used method of indirect assessment were behavior-rating scales with students as self-raters. However, the validity of self-report scales may be limited because of social desirability effects and the employment of third party raters is no without challenges as a high level of inference is demanded from the respondents (Mantz et al., 2018; McKown, 2019). We thus conclude in line with McKown (2015) and Mota et al. (2011), that a combination of multi-method and multi-informant assessment should be employed to assess social and emotional skills in routine practice. Malti et al. (2018) also acknowledged the importance of incorporating additional types of assessment and sources of information within a comprehensive design.

Instruments measuring social and emotional skills identified in this review focused primarily on upper elementary and middle school grade levels. In fact, the instruments applicable in lower elementary and high school grades were limited. This is consistent with the lack of instrumentation for younger student populations evidenced by Merrell & Gueldner (2010). Zych et al. (2018) also acknowledged the need for reliable instruments including both social and emotional skills assessment

**Table 4** The main features of each of the identified instruments assessing social and emotional skills

Instrument	Social- Emotional Skills Assessment Scale (SESAS)	Social and Emotional Competences Evaluation Questionnaire	Social-Emotional Learning Scale (SELS)	Washoe County School District (WCSD-SECA)	Zoo U
Type of measure	Self-report scale	Multirater scale	Self-report scale	Self-report scale	Performance assessment
Items	75	30	20	40	6
Subscales	Self-awareness, emotional management, autonomy, social awareness, interpersonal management, life skills	Self-Control, social awareness, relationship skills, social isolation, social anxiety, responsible decision-making	Task Articulation, Peer Relationships and Self-Regulation	Self-awareness, self-management, social awareness, relationship skills and responsible decision-making	Communication, cooperation, empathy, emotion regulation, impulse control, social initiation
Use	6-12 grades	4-9 grades	K-5	5-12 grades	3-5 grades
Raters	Student	Teacher	Student	Student	Student
Psychometric properties	Internal consistency reliability ( $\alpha$ ), content validity, criterion validity (concurrent)	Model fit (PCA, CFA), internal consistency reliability ( $\alpha$ ), test-retest reliability	Model fit (CFA), internal consistency reliability ( $\Omega$ )	Item Response Theory (IRT)	Criterion validity (concurrent and predictive), construct validity
Item format	5-point Likert type scale from (1) Strongly disagree to (5) Strongly agree	4-point Likert scale from (1) Never to (4) Always agree	5-point Likert type scale from (1) Strongly disagree to (5) Strongly agree	4-point Likert scale from (1) Very difficult to (4) Very easy	Situational judgement items

**Table 4** (continued)

Instrument	Defining Issues Test (DIT)	Social Emotional Learning Screening Assessment (SELA)	Social-Emotional Learning Skills Scale (SELSS)	Emotional Quotient Questionnaire for Youth Version	Social and Emotional Health Survey (SEHS)
Type of measure	Performance assessment	Multi-level rubric	Self-report scale	Self-report scale	Self-report scale
Items	5	8	27	60	36
Subscales	Self-awareness, self-management, social awareness, relationship management and responsible decision-making	Social Emotional: Self-awareness, self-management, social awareness, relationship skills, responsible decision-making Academic functioning: Motivation to learn, reading, mathematics performance	Relationship among friends, perception of friendship, persistence, success, self-management, impulse control, self-confidence	Intrapersonal, interpersonal, stress management, adaptability, general mood	Belief in self, belief in others, emotional competence, engaged living
Use	7-11 grades	K-5	3-4 grades	1-12 grades	6-12 grades
Raters	Student	Teacher	Student	Student	Student
Psychometric properties	Not reported	Internal consistency reliability ( $\alpha$ ), test-retest reliability, criterion validity (concurrent and predictive)	Model fit (EFA, CFA), internal consistency reliability ( $\alpha$ )	Model fit (EFA), internal consistency reliability ( $\alpha$ ), criterion validity (concurrent)	Model fit (CFA), measurement invariance (gender), construct validity (convergent and discriminant)
Item format	Open-ended	5-level descriptors from (1) Lowest performance level to (5) Highest performance level	3-point Likert scale from (1) Always to (3) Never	4-point Likert type scale from (1) Not true of me to (4) True of me	4-point and 5-point Likert type scales

**Table 4** (continued)

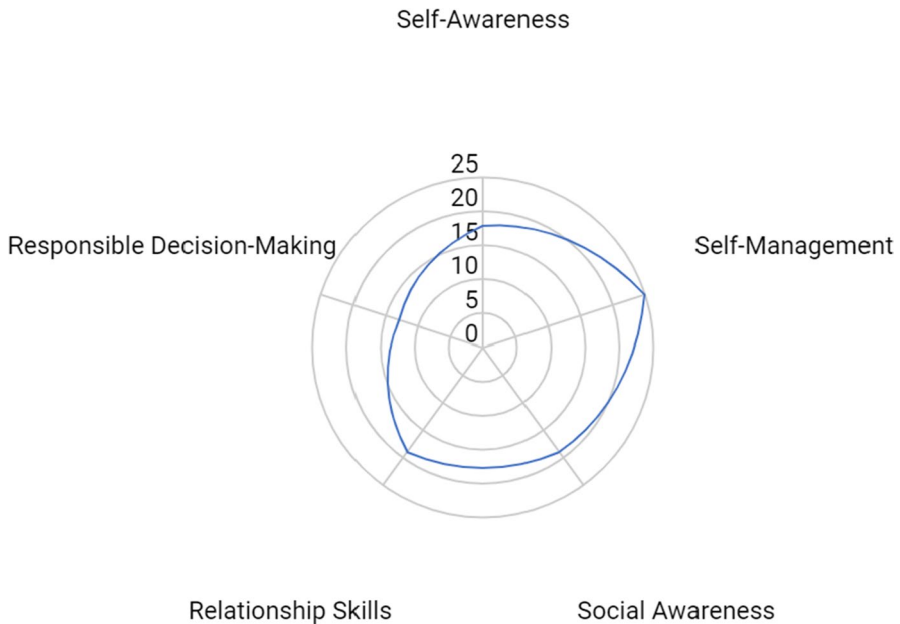
Instrument	Social Skills Improvement System (SSIS SEL)	Social-Emotional and Character Development Scale (SECDs)	Intervention Skills Profile (ISP)-Skills	Devereux Student Strengths Assessment (DESSA)	Holistic Student Assessment (HSA)
Type of measure	Multirater scale	Self-reported scale	Adult completed behaviour rating scale	Adult completed behaviour rating	Self-report scale
Items	46, 58, 51	28	14	72	25
Subscales	Self-awareness, self-management, social awareness, relationship skills, responsible decision-making	Prosocial behaviour, honesty, self-development, self-control, respect at school and at home	Self-awareness, self-management, social awareness, relationship skills, responsible decision making & study skills, academic engagement, motivation	Self-awareness, social-awareness, self-management, goal-directed behaviour, relationship skills, personal responsibility, decision making, optimistic thinking	Optimism, emotion control, action orientation, self-reflection, trust, empathy, assertiveness
Use	K-12	K-5	K-6	K-8	4-12 grades
Raters	Student, teacher, parent	Student	Teacher	Teacher, parent	Student
Psychometric properties	Model fit (CFA), internal consistency reliability ( $\alpha$ ), test-retest reliability, interrater	Model fit (CFA), internal consistency reliability ( $\alpha$ ), test-retest reliability, criterion validity	Model fit (Q-matrix), criterion validity	Internal consistency reliability ( $\alpha$ ), test-retest reliability, interrater reliability, criterion and construct validity	Model fit (EFA, CFA), internal consistency reliability ( $\Omega$ ), measurement invariance (age group), construct validity
Item format	4-point Likert scale from (0) Never to (3) Always	4-point Likert type scale (NO, no, yes, YES!)	5-point behaviourally anchored rating scale	5-point Likert type scale from (0) Never to (4) frequently	4-point Likert scale from (0) Not at all to (3) Almost always

Table 4 (continued)

Instrument	The Delaware Social-Emotional Competency Scale (DSECS-S)	SELweb	Social-Emotional Assets and Resilience Scale, Teacher	ACT Tessaera Social and Emotional Learning Assessment System	Social-emotional skills (SEMS) rubrics
Type of measure	Self-report scale	Performance assessment	Multitrater scale	Self-report scale	Multi-level rubric
Items	12	103	41	96	8
Subscales	Responsible decision making, relationship skills, self-management, social awareness	Emotion recognition, social perspective-taking, social problem-solving, self-control	Self-regulation, empathy, responsibility, social competence	Grit, teamwork, resilience, curiosity, leadership	Self-management, open-mindedness
Use	3-12 grades	K-3	K-12	K-5	6-8 grades
Raters	Student	Student	Teacher	Student	Student
Psychometric properties	Model fit (CFA), internal consistency reliability ( $\alpha$ ), criterion validity, measurement invariance (grade, race/ethnicity, gender)	Model fit (CFA), internal consistency reliability ( $\alpha$ ), test-retest reliability, measurement invariance (time, sex, ethnicity)	Model fit (EFA, CFA), internal consistency reliability ( $\alpha$ ), construct validity (convergent)	Model fit (CFA), internal consistency reliability ( $\alpha$ ), construct validity (convergent and discriminant), criterion validity, incremental validity	Item Response Theory (IRT)
Item format	4-point Likert scale from (1) Not like me at all to (4) Very much like me	Forced-choice items	4-point Likert type scale from (0) Never true to (3) Always/ almost always	Likert-type rating scale, situational judgment items, forced-choice items	7-level descriptors from (1) Beginning to (7) Exemplary

**Table 4** (continued)

Instrument	SENNA 1.0	Middle Years Development Instrument (MDI)	California's CORE Districts' SEL survey	Social Emotional Competence Questionnaire (SECC)	Social and Emotional Competencies Questionnaire (SEC-Q)
Type of measure	Self-report scale	Self-report scale	Multitrater scale	Self-report scale	Self-report scale
Items	92, 62	71	25	25	16
Subscales	Conscientiousness, emotional stability, extraversion, agreeableness, open-mindedness, external locus of control	Social-emotional development, connectedness to peers and adults, school experiences, physical health and well-being, constructive use of after-school time	Growth mindset, self-efficacy, self-management, social awareness	Self-awareness, social awareness, self-management, relationship management, responsible decision-making	Self-awareness, self-management and motivation, social-awareness and prosocial behaviour, decision-making
Use	5-12 grades	4, 7 grades	4-12 grades	3-12 grades	6-12 grades
Raters	Student	Student	Student	Student	Student
Psychometric properties	Model fit (EFA, CFA), internal consistency reliability ( $\alpha$ ), measurement invariance (grade)	Model fit (EFA, CFA), internal consistency reliability ( $\alpha$ ), construct validity (convergent and discriminant)	Internal consistency reliability ( $\alpha$ ), test-retest reliability, interrater reliability, criterion validity (concurrent)	Model fit (CFA), internal consistency reliability ( $\alpha$ ), criterion validity (predictive)	Model fit (EFA, CFA), criterion validity (concurrent)
Item format	5-point Likert type scale	Not reported	Not reported	6-point Likert type scale from (1) Not at all true to (6) Very true of me	5-point Likert scale from (1) Strongly disagree to (5) Strongly agree



**Fig. 5** Distribution of the five CASEL domains across identified instruments

in adolescents and young adults. Our results provide support for the need of developmentally tailored assessments of social and emotional skills targeting children and adolescents across all grade levels.

Of the instruments identified in this review, the number of items per measure varied greatly. Given the disadvantages of time-consuming instruments and in response to teachers and administrators' concerns, certain authors (DeRosier & Thomas, 2018; Mantz et al., 2018; Thomas et al., 2021; West et al., 2018) reported the need for brief and user-friendly measurement tools. We thus determine the importance of developing and validating short forms of instruments measuring social and emotional competences for practical utility purposes. The reviewed studies showed that the majority of the instruments relied on Likert items as an efficient response option. However, the validity of Likert items may be limited because of participants' response bias including reference or response pattern bias (Kankaraš, 2017). Murano et al. (2021) acknowledged the importance of item innovation in measuring social and emotional learning and focused on developing situational judgement test (SJT) and force choice (FC) items. Our results suggest the need to incorporate innovative types of items to collect more robust validity evidence.

With regard to psychometric data, the results across the studies yielded consistent findings supporting model fit, measurement invariance, reliability and validity. Careful attention should be paid to obtaining valid and reliable information about students' social and emotional skills. However, it is beyond the scope of this paper to evaluate the quality of the psychometric properties of identified instruments. Practitioners and researchers should make sure of employing empirically validated measurement instruments in schools.

**Table 5** The five CASEL domains measured by each of the identified instruments

	Self-Awareness	Self-Man- agement	Social Awareness	Relationship Skills	Responsible Decision- Making
SESAS	X	X	X	X	
QACSE-P-SF		X	X	X	X
SELS	X	X	X	X	X
WCSD-SECA	X	X	X	X	X
Zoo U	X	X		X	
DIT	X	X	X	X	X
SELA	X	X	X	X	X
SELSS	X	X		X	
EQ-i: YV	X	X	X	X	
SEHS	X	X	X		
SSIS SEL RF	X	X	X	X	X
SECDS	X	X		X	X
ISP-S	X	X	X	X	X
DESSA	X	X	X	X	X
HAS	X	X	X		
DSECS-S		X	X	X	X
SELweb	X	X	X		
SEARS-T		X	X	X	
ACT Tesserá		X			
SEMS		X			
SENNÁ 1.0		X		X	
MDI	X	X	X	X	X
CORE		X	X		
SECQ	X	X	X	X	X
SEC-Q	X	X	X	X	X

Another important finding of the current study is the direct influence of the CASEL five model in the development of measurement instruments. Although the domains contained within the instruments was heterogeneous, all identified instruments targeted at least one of the five areas of competence. Based on the evidence reviewed, social and emotional competences appear to be a set of skills rather than only one skill. However, a majority of the identified instruments failed to assess all of the five CASEL domains. Thus, the results of the present review support the lack of consensus regarding the domains targeted in the SEL field (Abrahams et al., 2019; Duckworth & Yeager, 2015; Greshman, 2020; Mantz et al., 2018). The instruments identified were heterogeneous in nature and therefore pinpointing the types of instruments which performed best is out of the scope of the present study.

Finally, the present findings should be considered in light of the following methodological limitations. First, the systematic search of the literature was only conducted in

three databases (Scopus, WoS and ERIC) and no additional manual searches were completed. Second, the search strategy was restricted to peer-reviewed contributions published in English in the 20 years prior to the search. Third, the five CASEL areas of competence were excluded from the search strategy as they resulted in incomplete instruments without precisely addressing the construct of social and emotional skills. To address these limitations, future research should extend the search strategy by considering other sources of information, a wider range of scholarly publications and other publication languages than English. In addition to that, it could be enriching to include the five specific CASEL domains into the search strategy.

## 5 Conclusions

The main aim of this review was to consolidate the peer-reviewed literature on the measurement instruments that have been developed and validated to measure social and emotional skills in children and adolescents. Our purpose was to inform future research for potential administration of assessment tools and systems of social and emotional skills for use in schools to identify the child's strengths and needs. We believe that the present paper can contribute to support school-based practitioners and psychologists in their ongoing efforts to lead social and emotional skills instruction and assessment in routine educational practice. Social and emotional competences are certainly gaining increasing popularity as they influence different spheres of individuals' life. Accordingly, it is crucial to advance high quality assessment methods in educational research and to provide a deeper understanding of these widespread set of skills.

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## Declarations

**Competing interests** The authors have no conflict of interest to disclose.

**Informed Consent** Not applicable

**Ethical Approval** Not applicable

**Research Involving Human Participants and/or Animals** Not applicable

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