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# Adaptation and validation of the social skills scale for intercultural primary school pupils

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In recent decades, large migratory movements have been taking place, which has turned Spain into a culturally diverse country. For this reason, the present research focuses on social skills, which are considered of utmost importance in different educational contexts. To this end, the aim was to adapt and validate a scale to diagnose social skills in young people aged 6 to 12 years ( $M = 9.65$  years;  $SD = 1.395$ ). Of these, 460 (60.4%) were boys and 301 (39.60%) girls. For this purpose, a methodology is followed that involves the judgement of experts in the field, followed by an exploratory factor analysis (EFA) and then a confirmatory factor analysis (CFA). The sample chosen for the study is made up of 1564 young people, Primary School students from different Andalusian localities that constitute border cities in the south of Spain, and which have a great cultural, ethnic and religious diversity that is reflected in their classrooms. The items of the scale were obtained from relevant questionnaires on the subject under study, initially containing 33 items and 6 underlying constructs. After validation of the AFE ( $n=761$ ), the structure is verified and the model is corroborated by CFA ( $n=803$ ) with structural equations ( $RMSEA = 0.04$ ;  $CFI = 0.77$ ;  $TLI = 0.73$ ). Finally, the reliability and internal consistency of the instrument is examined, obtaining values above 0.6 for all dimensions. As a result, a new scale composed of 33 items and 5 dimensions is obtained, with psychometric properties that give it validity and reliability. In conclusion, we present a useful resource for teachers that allows them to diagnose the social skills of Primary School students in schools characterised by their great cultural diversity and among the peer group.

## KEYWORDS

social skills, SPSSDC, exploratory factor analysis, confirmatory factor analysis, scale validation, interculturality

## 1. Introduction

Intercultural educational centers are meeting places for students of different ethnicities, cultures or religions (Chocobar, 2020), whose main objective is to achieve the social well-being of all their students from a tolerant and egalitarian perspective (Szelei et al., 2019). Positive social relations in these educational centers avoid segregation of the most vulnerable minorities (Brown et al., 2022), and, therefore, social conflict (Kirmizi, 2018). In this sense, different authors have shown that the development of social skills in students from contexts characterized by their great cultural diversity boosts the confidence of immigrant students, decreases social anxiety and fear of rejection (Clayden and Coohy, 2022) and increases the number of interpersonal relationships between students from

different cultural and linguistic backgrounds (Grob et al., 2019). Social skills play a crucial role in a specific social context where personality development, prosocial behavior, and positive emotional growth are required (Katherine et al., 2019; Mesurado et al., 2019; Llontop et al., 2020). Therefore, several studies have demonstrated the benefits of implementing social skills training in the educational context, especially in intercultural settings (Korpershoek et al., 2016; Taylor et al., 2017; Corcoran et al., 2018). Therefore, the aim of this study is to adapt and validate a scale that diagnoses social skills in young people aged 6 to 12 in culturally diverse contexts. The review of the scientific literature shows the importance of this study and lays the foundations for the hypotheses put forward: pupils belonging to minority groups present greater difficulties in their social skills within their peer group.

## 2. Background and theoretical framework

Intercultural students with social skills present more adaptive social behavior (Veziroglu-Celik and Acar, 2018), which can be successfully extrapolated to other life situations (Uiphanit et al., 2020). For this, it is important to create the right conditions that promote the training of these skills, as well as the development of efficient and effective programs that enable their acquisition and improvement (Okada and Matsuda, 2019). Primary education students, most of their time, are in the school context, becoming the school not only an academic space, but as an environment conducive to personal, social development and the acquisition of emotional skills. These skills can be acquired, learned and applied in the daily lives of young people, whether in the school context or in other contexts equally enriching in experiences and opportunities for the development of personal and interpersonal skills (Coelho and Sousa, 2018; Zelyurt and İnce, 2018). Authors such as Moutinho et al. (2019) emphasize that these skills can be acquired with the support of the main agents involved in the educational environment such as families or the school. In other scientific studies, it is indicated that inclusive educational contexts originate that students develop higher academic performance (Diaz-Garolera et al., 2022), better relationships (Palardy, 2019), constructive conflict resolution (Hakvoort et al., 2022), cope with social problems more effectively and engage in inappropriate behaviors less frequently (Brossard Børhaug and Weyringer, 2019). Positive social skills that are related to academic success (McNaughton et al., 2022), is a fundamental aspect in intercultural educational contexts (Pareja de Vicente et al., 2021), where academic success can condition their reception in the community and their subsequent social, economic and labor independence (Lakhal et al., 2020). Therefore, this study aims to develop an instrument to measure the social skills of Primary Education students in educational contexts characterized by their cultural diversity. The aim is to detect deficiencies in this area and improve future educational interventions (Sánchez-Bolívar et al., 2019).

### 2.1. Existing scales of analysis of social skills in adolescents

Several tools have been identified in the scientific literature to measure social skills, such as the Teenage Inventory of Social Skills (TISS) is the only self-report designed exclusively to reflect behaviors

functionally related to peer acceptance in adolescence (Inderbitzen and Foster, 1992; Inglés et al., 2005) the Matson Evaluation of Social Skills with Youngsters Scale (MESSY), describes an analysis of aggressive and antisocial behavior in girls and boys aged 7 to 15 years (Matson et al., 1983) the Multidimensional Social Expression Scale (EMES-M), a scale that addresses cognitive aspects of subjects that may play basic roles in the expression of socially skilled behavior (Caballo, 1993) the Interpersonal Difficulties Questionnaire (DCI), describes the development and psychometric properties of a new self-report measure aimed at detecting the level of difficulty that adolescents present in their interpersonal relationships (Eceiza et al., 2008) the Inventory of Social Skills (IHS), this study analyzed research that develops psychometric instruments to assess social skills and other related constructs, such as assertiveness, social competence and social self-efficacy (Del Prette et al., 1998; Orlando et al., 2009) the Social Skills Scale (EHS), which reviews the general background of instruments commonly used to assess social skills and presents the general characteristics of the instrument studied, reviewing its psychometric measurement properties (Gismero, 2000; Miranda-Zapata et al., 2014) and the Interpersonal Difficulties Assessment Questionnaire for Adolescents, which detects the level of difficulty that adolescents have in their interpersonal relationships (Inglés et al., 2009). However, most of these instrument's focus on the adolescent stage, so it is essential to develop a tool that considers the specific characteristics of primary school students. During this stage, children begin to interact with their peers, which is crucial for their personal and academic development (Kerklaan et al., 2020).

### 2.2. Limitations and lacks of existing instruments on social skills

One of the limitations observed in the use of existing instruments for self-assessment of social skills is that they are outdated. In addition, it is difficult to find culturally appropriate instruments focused on the educational level to be addressed (Pareja de Vicente et al., 2021). This hinders an adequate intervention by teachers, since the diagnosis obtained does not allow identifying the main difficulties encountered in these educational contexts (Civitillo et al., 2021). At present, research carried out in previous years in this area is still being used. For this reason, and after analyzing the scientific literature, it is considered essential to provide a questionnaire with excellent psychometric properties that analyzes the construct. For this purpose, the questionnaire "Social Skills Scale for Young Immigrants" (SSSYI) by Tomé-Fernández et al. (2020) has been used as a reference. This questionnaire consists of 33 items, organized in different dimensions: ability to say "no" and cut interactions, self-expression in social situations, defense of rights as a consumer, expression of anger or disagreement, ability to make requests to others and ability to initiate positive interactions with people of the opposite sex, related to those applied in previous studies (Bunford et al., 2015a,b; Hintermair et al., 2016; Caballo and Salazar, 2017). This instrument was designed following the parameters and conditions stipulated to obtain valid and reliable results, since an instrument with adequate psychometric properties allows the assessment of specific social skills involved in adaptive and non-adaptive behaviors (Tomé-Fernández et al., 2020).

### 3. Materials and methods

#### 3.1. Participants

To avoid problems related to overfitting, the samples for each type of factor analysis corresponded to two data collection processes in the target population (Strayhorn et al., 2022). At first, the aim is to find the structure and dimensions in which the questionnaire items are organized according to the validation using EFA. For its procedure, data collection was carried out within a selection of eight Infant and Primary schools from different provinces of Andalusia from which students were surveyed (Table 1). Participants at this stage reported ages ranging from 6 to 14 years ( $M=9.65$  years;  $SD=1.395$ ). Of these, 460 (60.4%) were boys and 301 (39.60%) girls (Table 2). In addition, 651 (85.5%) were of Christian religion, 29 (3.8%) were Islamic, 81 (10.60%) did not know or did not answer. In terms of ethnicity, 84 (11%) belonged to the Roma ethnic group and 677 (89%) to the Castilian ethnic group. Finally, with regard to race, 29 (3.8%) students were of African origin and 732 (96.2%) were white. The second data collection process (AFC) allowed us to retrieve an additional set of 807 student surveys, within the selection of the eight Infant and Primary schools in the different provinces of Andalusia previously selected in the previous procedure (AFE) from which students who wished to participate were re-surveyed (Table 1). Participants at this stage reported ages ranging from 6 to 14 years ( $M=9.65$  years;  $SD=1.365$ ). At this stage, 479 (59.7%) were boys and 324 (40.3%) were female (Table 2). In addition, 690 (85.9%) were of Christian religion, 29 (3.6%) were Islamic, 84 (10.5%) did not know or did not answer. In terms of ethnicity, 85 (10.6%) belonged to the Roma ethnic group and 718 (89.4%) to the Castilian ethnic group. Finally, with regard to race, 29 (3.6%) students were of African origin and 774 (96.4%) of white origin.

#### 3.2. Instrument

Initially, the scale of social skills in Primary Education students in diverse contexts was carried out by reviewing the scientific literature and analyzing the different instruments related to the topic, such as, for example, the Social Skills Learning Team Questionnaire (CHSEA; Mendo-Lázaro et al., 2018), Social Skills Questionnaire (CHASO-III;

Salavera et al., 2017), the Social Skills Inventory (Oldmeadow et al., 2013), the Social Skills Questionnaire for University Students (SSQ-U; Morán et al., 2015), Social Skills Scale for Young Immigrant (Tomé-Fernández et al., 2020), the Social Skills Improvement System-RS (Bunford et al., 2015a,b). Subsequently, we opted for the adaptation and validation on which this research is based, which considered all previous instruments more appropriate in terms of the simplicity of the language of the constructs assessed, and fulfilling excellent psychometric properties of validity and reliability (Klimeckil et al., 2018), as well as being novel in the definition and diagnosis of social skills. The initial instrument was structured into 33 items that are scored along a Likert scale with four response options. Responses range from never (1) to always (4). The scale is relevant to the study context, with the items having been literally translated into Spanish from the items provided by Tomé-Fernández et al. (2020). Once the first version of the questionnaire had been designed, the content validation process was set in motion to analyze the degree to which the instrument was capable of measuring the different dimensions and items to be analyzed, taking into account both its clarity and relevance. To this end, in the preliminary phase of the study, the questionnaire was submitted to the judgment of experts who made it possible to refine and add modifications to the initial questionnaire. These were professionals related to the development of social skills of students of different ages, nationalities and cultures working in educational institutions and researchers from Spanish universities, whose lines of work are linked to the diagnosis and evaluation of social aspects in immigrants (Shelanee et al., 2020). These consisted of 25 experts from different universities, of which 10 were researchers related to diverse contexts, 9 were associated with social skills in adolescents in the field of early childhood and primary education and 6 had lines of work related to interculturality. The questionnaires were sent by email to each of the experts. The scaling method was used to rate from 1 to 4 (1 = never, 2 = sometimes, 3 = quite a lot, 4 = always) the importance of each item. The experts were consulted on the face validity and readability of the questionnaire in order to assess the appropriateness of the instrument's information for primary school and immigrant youth, as well as the comprehension and wording of the items (Mérida et al., 2015). The experts provided qualitative responses to open-ended questions. Based on the experts' responses, modifications were made to several items of the questionnaire, both significant and non-significant. To carry out these modifications, the indications of

TABLE 1 Distribution of schools by province (EFA and CFA).

	EFA		CFA	
	Frequency	Percentage	Frequency	Percentage
Sevilla	95	12.5	95	11.8
Cádiz	96	12.6	96	11.9
Huelva	95	12.5	95	11.8
Málaga	94	12.4	94	11.6
Córdoba	95	12.5	95	11.8
Granada	53	7.0	95	11.8
Jaén	96	12.6	96	11.9
Almería	137	18.0	137	17.0
Total	761		803	

TABLE 2 Sociodemographic data and sample distribution (EFA and CFA).

	Frequency	Percentage	Frequency	Percentage
	EFA		AFC	
Gender				
Female	301	39.6	324	40.3
Male	460	60.4	479	59.7
Total	761	100.0	803	100.0

Barbero (2006) for inter-judge agreement were followed. The mean value of each item was analyzed, being equal to or greater than 2.5, and the median value was considered as the item value. In addition, an ambiguity coefficient was established to measure the dispersion in the judges' agreement, using the interquartile range as the criterion. If the difference between the 75th percentile (P75) and the 25th percentile (P25) was equal to 0.0 or 1, the item was accepted and/or slightly modified; if the difference was between 1 and 2, the item was revised and reformulated; and if it was greater than 2, the item was rejected due to high dispersion among expert judgments. The final questionnaire was obtained and its hierarchical structure was demonstrated through factor analysis.

### 3.3. Procedure and information gathering

The purpose of the present study was the validation of an instrument, which was administered individually to students from different schools who expressed their willingness to participate in the research. To this end, the corresponding informed consent was requested from the management team of each institution and from the parents or legal guardians of the minors, in compliance with the ethical and legal requirements established for carrying out research with subjects under the age of majority. The questionnaire was administered in school classrooms, in the presence of teachers, and the response time for its completion varied between 12 and 20 min approximately. It is important to mention that the students did not require assistance to understand the items in the questionnaire, as most of them are fluent in the official language of the host country, which is the language that predominates in their social interaction outside the family environment. Throughout this procedure, the ethical criteria established in the Declaration of Helsinki in 1975 and then updated in Brazil in 2013 and the protocol approved by the Ethics Committee of the University of Granada (reference code: 742/CEIH/2018) were followed.

### 3.4. Data analysis

All collected data were imported into IBM SPSS version 28 software (Wanna, 2022) in order to conduct a preliminary descriptive analysis and examine the normality of the data. Following this, an exploratory factor analysis (EFA) was conducted, previously it was decided to employ the principal axis factorization method with Oblimin rotation, due to the fact that the factors are correlated (Yong and Pearce, 2013). The overall reliability of the scale was determined using Cronbach's alpha coefficient, setting the index reliability at 95%.

In the second phase, a confirmatory factor analysis (CFA) was conducted using the latest version of the IBM Amos package. For this purpose, the quantitative data acquired were analyzed in two periods: the first, through which the EFA was carried out using the latest version of SPSS statistical software; the second, in which the CFA was carried out using the AMOS statistical programmed, confirming the hierarchical structure of the previous analysis. This took into account the goodness-of-fit criteria established by Kock (2014) and Hu and Bentler (1999). To study model fit, the Chi-square statistic was calculated, together with the Comparative Fit Index (CFI), Normalized Fit Index (NFI), Incremental Fit Index (IFI), and The Root Mean Square Error of Approximation (RMSEA). These incremental fit indices assess the improvement of the proposed model relative to a previous baseline model (Wanna, 2022).

## 4. Results

The results obtained in the preliminary analysis on the different items composing the social skills scale were followed up with the calculation of the main statistical tests of dispersion. Table 3 presents the results of the answers given by the judges as well as the decisions made on the content validity of the questionnaire items with respect to relevance and clarity, respectively. It shows that none of the items should be deleted, however, it shows that nine items should be modified ( $P75-25 \leq 1$  and 2).

The items used for the validation of the instrument are presented in Table 4 below, where a total of 33 items were used, of which 24 were rated with a score higher than 4 (out of 5 points).

### 4.1. Exploratory factor analysis

An EFA of the 33-item scale was conducted using the principal axis method of factor extraction, using Oblimin rotation, since the factors are correlated (Yong et al., 2021). The Bartlett's statistic produced in relation to this revealed an acceptable fit, as this factor analysis was validated using the Kaiser-Meyer-Olkin sampling adequacy (KMO) with a value of 0.831 with a Bartlett's sphericity of 3477.120 ( $p=0.000$ ) which was equally acceptable. Since the closer the value obtained from the KMO test is to 1, it implies that the relationship between the variables is excellent (Siembida et al., 2018), as is the case in this study. The results of the factor analysis are presented in Table 5.

According to Siembida et al. (2018) after extraction, the communalities must be  $\leq 0.30$  to conjecture that the measure assumes excellent validity (Table 6). After extraction, the instrument meets this

**TABLE 3** Mean, median, mode, standard deviation, 25th–75th percentiles and decision made on the content validity of the items of the questionnaire regarding the degree of agreement with the items.

Item	P <sub>25</sub>	P <sub>50</sub>	P <sub>75</sub>	P <sub>75–25</sub>	Decision	
Item 1	3.50	4.00	0.972	3.00	1.00	Modify
Item 2	3.90	4.00	0.316	4.00	0.00	Accept
Item3	3.90	4.00	0.316	4.00	0.00	Accept
Item4	3.90	4.00	0.316	4.00	0.00	Accept
Item5	3.90	4.00	0.316	4.00	0.00	Accept
Item6	3.90	4.00	0.316	4.00	0.00	Accept
Item7	3.90	4.00	0.316	4.00	0.00	Accept
Item8	3.60	4.00	0.966	3.75	0.25	Modify
Item9	3.80	4.00	0.422	3.75	0.25	Modify
Item10	3.90	4.00	0.316	4.00	0.00	Accept
Item11	3.90	4.00	0.316	4.00	0.00	Accept
Item12	3.90	4.00	0.316	4.00	0.00	Accept
Item13	3.60	4.00	0.966	3.75	0.25	Modify
Item14	3.70	4.00	0.675	3.75	0.25	Modify
Item15	3.90	4.00	0.316	4.00	0.00	Accept
Item16	3.90	4.00	0.316	4.00	0.00	Accept
Item17	3.90	4.00	0.316	4.00	0.00	Accept
Item18	3.78	4.00	0.441	3.50	0.50	Modify
Item19	3.80	4.00	0.422	3.75	0.25	Modify
Item20	3.30	4.00	1.059	2.75	1.25	Modify
Item21	3.90	4.00	0.316	4.00	0.00	Accept
Item22	3.90	4.00	0.316	4.00	0.00	Accept
Item23	3.80	4.00	0.422	3.75	0.25	Modify
Item24	3.90	4.00	0.316	4.00	0.00	Accept
Item25	3.90	4.00	0.316	4.00	0.00	Accept
Item26	3.40	4.00	1.075	4.00	0.00	Accept
Item27	3.70	4.00	0.483	4.00	0.00	Accept
Item28	3.50	4.00	0.972	4.00	0.00	Accept
Item29	3.20	4.00	1.135	4.00	0.00	Accept
Item30	3.60	4.00	0.966	4.00	0.00	Accept
Item31	3.70	4.00	0.483	4.00	0.00	Accept
Item32	3.20	4.00	1.229	4.00	0.00	Accept
Item33	3.80	4.00	0.422	4.00	0.00	Accept

criterion in all of its items, so they were not eliminated, maintaining the 33 items that make up the questionnaire. In addition, the study (AFE) grouped the 33 initial items into five factors or dimensions with factor loadings ranging from 0.77 to 0.511 (Table 6).

Five different dimensions of the Social Skills in Primary School Students in Diverse Contexts scale (SPSDC) have been identified. The first of these is called “Denial” and deals with situations where the young person considers that saying “no” and cutting off interactions is not a difficulty, but something opportune. It has an optimal internal scale consistency, with a Cronbach’s alpha value of 0.70 and consists of 8 items (22, 23, 19, 24, 20, 21, 25, 18). The second dimension

identified is called “Self-Expression,” and the items included refer to self-expression in social situations (33, 7, 8, 6, 9, 2). The items referring to this dimension also present a reliability above the minimum required values (Cronbach’s alpha of 0.76). The third-dimension deals with young people’s expression of emotions “Emotional expression” (32, 3, 5, 1, 4, 15, 14) where once again the reliability of the scale is optimal (Cronbach’s alpha of 0.60). The fourth dimension identified refers to “No opinion,” where seven items address not daring to express one’s opinion to others (11, 17, 12, 31, 10, 16, 13). This dimension represents a reliability of 0.62. Another dimension is called “Relationship with peer group.” This dimension consists of 5 items dealing with relationships with friends (29, 27, 28, 26, 30). Furthermore, the component analysis showed that the five dimensions have 62.03% of the total variance explained. The distribution of the items in five factors coincides with the hierarchical structure of the instrument reference (Maggiori et al., 2017), which bases the dimensions of social skills on important theoretical references (Sánchez-Bolívar et al., 2019), which specify that when a subject presents social skills, they are able to express their emotions in different situations, defend their opinion, show denial and express themselves clearly, as well as initiate interactions with peers. These aspects are developed in the five dimensions established in the scale called Social Skills in Primary School Students in Diverse Contexts (Burchinal et al., 2020).

### 4.2. Confirmatory factor analysis

After conducting the FEA, the CFA is carried out to corroborate the suitability of the indicators to assess the latent variables (Anderson-Butcher et al., 2016). This test was conducted on a sample of N=803 and analyzed with AMOS software, version 24. At this stage the data (CFA) are presented in path diagrams, where circles represent latent variables and squares represent observed variables. Single-headed arrows are used to indicate a direction of presumed influence, and double-headed arrows represent the covariance between the five latent variables. This type of analysis, according to authors such as Salavera Bordás et al. (2019), makes it possible to assess the validity and reliability of each item of the questionnaire and performs an individual hypothesis test, where it measures whether the instrument is valid and subsequently measures its reliability. Taking into account this procedure, it can be deduced that the proposed model presents a reasonable contiguity of the data, and ratifies the hypothesis of the multidimensionality of the analyzed construct. The latent variables for the SPSDC were presented in 8, 6, 7, 7, and 5 items (Figure 1). In the first factor, the items are adequately explained by the hypothesized construct, showing a minimum saturation of 0.65 and a maximum of 1.00. The second factor presents saturations ranging from 0.80 to 1.40. The third factor ranges between 1.00 and 1.55. The fourth factor ranges between 1.00 and 1.85. Finally, the fifth factor presents a minimum saturation of 1 and a maximum of 1.36, which shows that the items show a satisfactory correlation with the total test (Figure 1).

To carry out the CFA, the CMIN (Cb, minimum value of the discrepancy) was observed with a x2 distribution (Table 7).

Establishing the criteria of other studies (Bentler, 2007; Byrne, 2010), the Chi-square goodness-of-fit test (x2) tends to be insufficient for the sample size used; Therefore, it is recommended to take into account the comparative fit index (CFI), the Tucker-Lewis index (TLI)

TABLE 4 Mean and SD of the items of the social skills scale in primary school students in diverse contexts.

Items	Mean	SD
1	4.61	0.754
2	4.37	0.667
3	2.08	0.922
4	4.57	0.866
5	4.95	0.981
6	4.46	0.774
7	4.38	0.775
8	4.48	0.827
9	4.77	1.017
10	2.09	1.380
11	4.92	1.106
12	2.06	1.196
13	4.94	1.122
14	4.95	1.099
15	4.94	1.089
16	4.90	1.045
17	2.26	1.142
18	4.77	1.010
19	4.89	1.081
20	4.88	1.048
21	4.98	1.110
22	4.88	1.084
23	1.94	1.060
24	4.64	0.967
25	4.83	1.088
26	4.66	0.984
27	4.58	0.917
28	4.66	0.912
29	4.69	1.003
30	3.65	0.994
31	2.10	1.141
32	3.70	1.024
33	3.57	0.979

TABLE 5 KMO and Bartlett’s test.

Kaiser-Meyer-Olkin measure of sampling adequacy		0.831
Bartlett’s sphericity test	Approximation Chi-cuadrado	3477.120
	gl	528
	Sig.	0.000

and the root mean square error of approximation (RMSEA) with the intention of knowing the degree of fit between the covariance matrix of the observed data and the covariance matrix predicted by the model, established by the goodness-of-fit index. The CFI, TLI and

RMSEA obtained at this stage show good internal consistency of the latent factors (Salavera Bordás et al., 2019). Furthermore, according to Aljaberi et al. (2022), the CFI and TLI are considered to have an acceptable fit the closer they are to 1, a characteristic that is fulfilled in the results of this research, whose CFI=0.772 and TLI=0.737 (Table 8). As for the RMSEA value, it is considered an excellent fit, since its value is 0.42 (Table 9). It can be deduced that the proposed model exhibits reasonable contiguity of the data and ratifies the hypothesis of the multidimensionality of the construct. The latent variables for the KABIP-S were presented in 33 items (Figure 1). Once the CFA was completed and the 33-item instrument structure was confirmed, the internal consistency test (Cronbach’s alpha), obtaining a reliability factor of  $\alpha=0.667$  for the first dimension,  $\alpha=0.613$  for the second dimension,  $\alpha=0.663$  for the third dimension,  $\alpha=0.638$  for the fourth dimension and, finally,  $\alpha=0.668$  for the last dimension. This indicates a good reliability of the scale (Laurencelle, 2021).

### 5. Discussion

The aim of this study was to develop an instrument to assess the social skills of primary school students from different contexts in the eight Andalusian provinces. First, the validity and readability of the questionnaire was assessed by consulting experts in the field, who qualitatively, through open-ended questions, evaluated the adequacy of the instrument’s information for primary school students and immigrants. The comprehension and wording of the items were also reviewed in order to prevent people from minority groups from feeling excluded (Mérida et al., 2015). The experts indicated the need to modify several items substantially. To this end, the indications of Barbero (2006) for inter-rater agreement were followed, in which the mean value of each item was analyzed, being equal to or greater than 2.5, the median value was considered as the item value, and it was established that the 50th percentile (P50) should obtain values equal to or greater than 2.5. In addition, an ambiguity coefficient was established to measure the dispersion in the judges’ agreement, using the interquartile range as a criterion. The internal consistency and reliability of the items used in the Likert-type questionnaire to determine social skills in primary school students in various contexts were considered acceptable and in line with previous studies with reference instruments (Bunford et al., 2015a,b; Hintermair et al., 2016; Mendo et al., 2016; Caballo and Salazar, 2017). In the second phase of the analysis, the reliability of the scale was determined by means of a KMO index with a value of 0.8, indicating that the questionnaire is valid for measuring the construct. In addition, all items were found to have common items suitable for retention, which made it possible to maintain the 33 items that make up the questionnaire without the need to eliminate any of them. In this phase, a questionnaire was developed with a series of items that were grouped into six dimensions. Subsequently, through EFA, the relevance of each of these items was confirmed, which led to reducing the questionnaire to five dimensions: denial, self-expression, expression of emotions, non-opinion and peer group relationship. It is important to highlight the face validity of the nomological criterion and the readability of the questionnaire, as the aim is to create a comprehensible tool to measure social skills in young primary school children in diverse contexts (Sun et al., 2020). As advocated by John et al. (2019), it is essential to develop instruments that are accessible to young people and in this sense, the adapted

TABLE 6 Extraction of scale communalities and rotated factor matrix (Oblimin rotation).

Extraction of scale communalities		Rotated factor matrix					
Items	Communalities	Items	1	2	3	4	5
1	0.471	22	0.502				
2	0.450	23	0.468				
3	0.530	19	0.334				
4	,572	24	0.330				
5	0.544	20	0.318				
6	0.557	21	0.298				
7	0.617	25	0.296				
8	0.517	18	0.246				
9	0.534	33		0.104			
10	0.557	7		0.493			
11	0.504	8		0.485			
12	0.544	6		0.445			
13	0.611	9		0.281			
14	0.569	2		0.210			
15	0.448	32			0.077		
16	0.498	3			0.557		
17	0.630	5			0.413		
18	0.598	1			0.357		
19	0.442	4			0.312		
20	0.501	15			0.252		
21	0.538	14			0.184		
22	0.474	11				0.458	
23	0.480	17				0.447	
24	0.404	12				0.346	
25	0.490	31				0.327	
26	0.608	10				0.307	
27	0.516	16				0.292	
28	0.524	13				0.232	
29	0.612	29					0.253
30	0.564	27					0.511
31	0.673	28					0.411
32	0.537	26					0.360
33	0.606	30					0.333

questionnaire stands out for its psychometric properties compared to the scales used in previous studies, such as the Social Skills Questionnaire (CHASO III) with 76 items, the Social Skills Inventory (Oldmeadow et al., 2013) with 90 items, the Social Skills Inventory (Oldmeadow et al., 2013) with 90 items, the Social Skills Questionnaire for University Students (SSQ-U; Morán et al., 2015) with 38 items, the Social Skills Improvement System-RS (Bunford et al., 2015a,b) with 46 items and the Social Skills Questionnaire for Traumatic Brain Injury (SSQ-TBI; Francis et al., 2017) with 41 items. It should be noted that the scale's target sample is composed of a population between 6 and 12 years of age, with diverse cultural, ethnic or religious characteristics. For this reason, the instrument has been designed

taking into account the different expressions and offensive statements that could be misinterpreted and offend the different members of the sample. For this reason, the questionnaire has been written using inclusive and accessible language, defined as language that is used in a neutral way so that students understand it and members belonging to minority groups do not feel excluded (Dinour, 2019). In terms of construct validation, structural equation modeling (SEM) indicated that the model conforms to excellent psychometric properties, demonstrating that it can be applied to the target population. In the first phase of validation (AFE), it was shown that all items showed good psychometric performance and that the instrument was structured in five dimensions with adequate levels of correlation

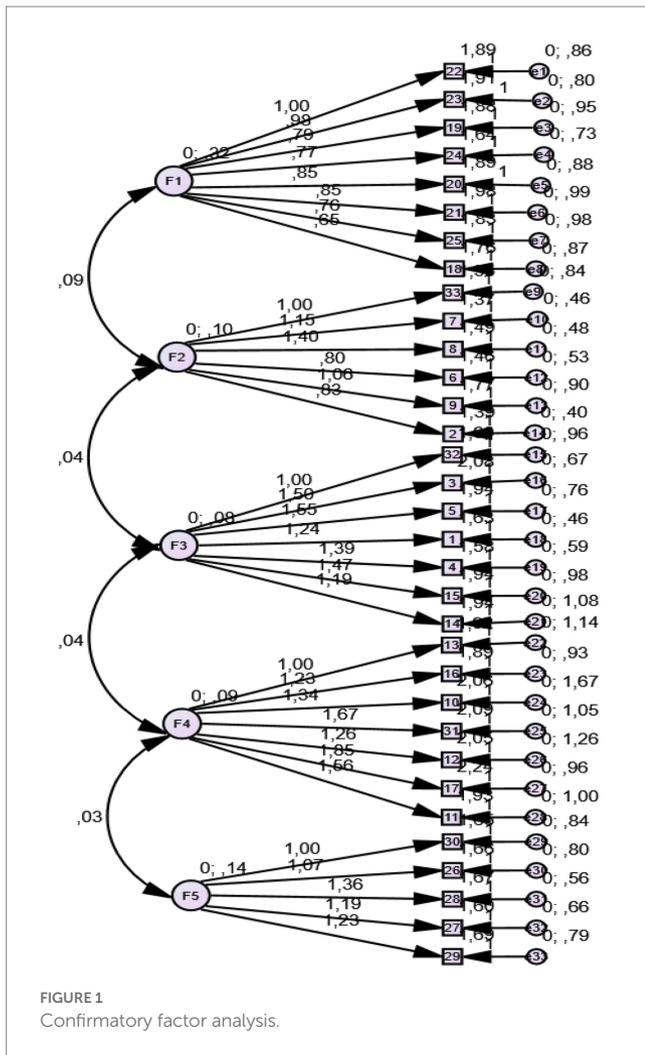


TABLE 7 CMIN.

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	109	1185.745	485	0.006	2.445
Saturated model	594	0.000	0		
Independence model	33	3639.727	561	0.000	6.488

TABLE 8 Baseline comparisons.

Model	NFI	RFI	IFI	TLI	CFI
Default model	0.674	0.623	0.778	0.737	0.772
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000

between them, indicating acceptable validity, confirmed through CFA. As reflected in the scientific literature (Bunford et al., 2015a,b; Hintermair et al., 2016; Mendo et al., 2016; Caballo and Salazar, 2017; Mendo-Lázaro et al., 2018), the results in the adaptation of a questionnaire are usually lower than the original starting instruments.

TABLE 9 RMSEA.

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.042	0.039	0.045	1.000
Independence model	0.083	0.080	0.085	0.000

However, the results obtained in the validation and adaptation of the questionnaire were even higher than the original scales from which the questionnaire was adapted instrument (Lecerf and Canivez, 2018). This indicates that the instrument is highly valid and reliable for use in the target population. Additionally, the evaluation of the Structural Equation Model (SEM) corroborated that the coefficients obtained presented a positive direction in line with theory (Mendo et al., 2016; Ruales et al., 2020). Ultimately, the results obtained showed a good fit and reliability, which positions it as an excellent instrument for future researchers and professionals in the field of education to assess the social skills of young people in primary education in diverse contexts. In today's social context, having good social skills is especially necessary (Golson et al., 2022). Teaching schools should encourage the use and practice of social skills, both in terms of teaching practices and mutual social interactions among prospective teachers (Pan and Hung, 2022). Teachers should encourage the use of constructs such as self-esteem, emotions, affect and social skills among migrant learners (Burchinal et al., 2020). According to Kerklaan et al. (2020), there are important links between social skills and an individual's social well-being, as changes in one of these areas have an impact on the other.

## 6. Conclusion

The present study focuses on the adaptation of a questionnaire that assesses attitudes related to social skills in primary school students from diverse contexts in all provinces of Andalusia. The questionnaire has shown good adaptability at both exploratory and confirmatory levels. The final scale consists of 33 items, and has obtained acceptable values in terms of CFI, TLI, RMSEA and Cronbach's alpha coefficients. It is considered important to highlight that this study has provided a suitable, reliable and robust scale for assessing the social skills of primary school students in culturally diverse contexts. The final scale considers that the instrument should be structured in five dimensions describing attitudes such as denial, self-expression, non-opinion, relationship with peer group and expression of emotions. In summary, the results obtained indicate that this scale is a suitable candidate for assessing students' social skills, and it is the only instrument that takes into account the linguistic and comprehension peculiarities of the target sample in culturally diverse primary school contexts.

## 7. Limitations

The study was conducted in a specific population, which limits the generalizability of the results to other provinces in Spain or other European countries. For this reason, the findings may not be representative of these broader populations. On the other hand, other groups that may be considered relevant have not been included, which limits the applicability of the results to these specific groups. Further research to validate the questionnaire in

different minority groups could be applied for future studies. Furthermore, the study was based on a quantitative approach using the validation of a questionnaire. However, other methodologies, such as qualitative interviews or focus groups, could provide a deeper and more contextualized understanding of the phenomenon studied. While statistical analyses were used in the study, other methods or analytical approaches that could have provided a more complete perspective may have been overlooked. Given these limitations, the use of complementary analytical techniques is considered important for future research. Finally, the study may have been subject to response bias, as participation was voluntary. This could affect the representativeness of the results and the validity of the conclusions.

## Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

## Ethics statement

Throughout this procedure, the ethical criteria established in the Declaration of Helsinki in 1975 and then updated in Brazil in 2013 and the protocol approved by the Ethics Committee of the University of Granada (reference code: 742/CEIH/2018) were followed. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

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## Author contributions

JO-M, MT-E, and EA-V conceived the hypothesis of this study, analyzed the data, contributed to data interpretation of the statistical analysis, wrote the manuscript with significant input, and read and agreed to the published version of the manuscript. EA-V participated in data collection. All authors contributed to the article and approved the submitted version.

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## Conflict of interest

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

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