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Factor Validation of the Portuguese Version of the Social Skills Scale of the Preschool and
Kindergarten Behavior Scales

Article

Factor Validation of the Portuguese Version of the Social Skills Scale of the Preschool and Kindergarten Behavior Scales[1]

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Abstract: The assessment of preschoolers' social skills represents a topic of growing importance in research recently developed in the field. The purpose of this article is to present confirmatory factor analyses studies for the Social Skills scale of the Preschool and Kindergarten Behavior Scales – Second Edition (PKBS-2), a behavior rating scale that evaluates social skills and problem behaviors, adapted and validated for Portuguese preschool children. The 34 items of the Social Skills scale, distributed on three subscales (Social Cooperation/Adjustment, Social Interaction/Empathy and Social Independence/Assertiveness), were grouped into item-parcels. Model adjustment was analyzed for the total sample ($N = 2000$) and the analyses were replicated for the subsamples collected in the home ($n = 1000$) and school settings ($n = 1000$). The factor structure was very stable for the three samples, with high internal consistency levels and correlations between parcels/scales. The results highlight the utility/validity of the Social Skills scale of the PKBS-2 (Portuguese version).

Keywords: scales, social skills, factor analysis, preschool students

Validação Fatorial da Versão Portuguesa da Escala de Aptidões Sociais das *Preschool and Kindergarten Behavior Scales*

Resumo: A avaliação de aptidões sociais de crianças pré-escolares representa um tópico de relevância crescente em pesquisas desenvolvidas na área. O objetivo deste artigo é apresentar estudos de análise fatorial confirmatória da escala de Aptidões Sociais das *Preschool and Kindergarten Behavior Scales – Second Edition* (PKBS-2), uma escala de avaliação de aptidões sociais e problemas de comportamento adaptada e validada para a população pré-escolar portuguesa. Os 34 itens da escala de Aptidões Sociais, distribuídos por três subescalas (Cooperação/Ajustamento Social, Interação Social/Empatia e Independência Social/Assertividade), foram reagrupados em parcelas. O ajustamento do modelo foi analisado para a totalidade da amostra ($N = 2000$) e as análises replicadas para subamostras recolhidas em casa ($n = 1000$) e na escola ($n = 1000$). A estrutura fatorial revelou-se bastante estável nas três amostras, sobressaindo valores elevados de consistência interna e correlação entre parcelas/escalas. Os resultados reforçam a utilidade/validade da escala de Aptidões Sociais das PKBS-2 (versão portuguesa).

Palavras-chave: escalas, habilidades sociais, análise factorial, pré-escolares

Validación Factorial de la Versión Portuguesa de la Escala de Aptitudes Sociales de las *Preschool and Kindergarten Behavior Scales*

Resumen: La evaluación de las habilidades sociales en los niños en la etapa preescolar es un tema de creciente relevancia en la investigación recientemente desarrollada. Este trabajo presenta los estudios de análisis factorial confirmatorio de la escala de Habilidades Sociales de las *Preschool and Kindergarten Behavior Scales – Second Edition* (PKBS-2) validada para la población preescolar portuguesa. Los 34 ítems de la escala se distribuyen en tres subescalas (Cooperación/Ajuste Social, Interacción Social/Empatía e Independencia Social/Asertividad), se agruparan en parcelas. El ajuste del modelo fue analizado para la muestra total ($N = 2000$), y se realizó una replicación del análisis para las submuestra recogida en casa ($n = 1000$) y en la escuela ($n = 1000$). La estructura factorial resultó ser bastante estable en las tres muestras, destacando los altos niveles de consistencia interna y de correlación entre parcelas/escalas. Los resultados refuerzan la utilidad/validez de la escala de Habilidades Sociales de las PKBS-2 (versión portuguesa).

Palabras clave: escalas, habilidades sociales, análisis factorial, pre escolares

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The 1970s have been highlighted as the formal moment of the proliferation of studies on children's social skills. Previously, this construct had been the target of attention, with the contributions that renowned authors (e.g., Piaget, Moreno) provided in the study of the social behavior of the child (Lopes, Rutherford, Cruz, Mathur, & Quinn, 2006; Merrell & Gimpel, 1998). In this sense, at least in practical terms, until about 50 years ago, parents, teachers

and psychologists were not familiar with concepts such as social competence and social skills. In recent decades a greater interest in this area has arisen, in school and clinical psychology as well as in special education (McFall, 1982), thus raising the need for better assessment and intervention in the field of children's social behavior (Anme at al., 2013; Caselman & Self, 2008; Gresham, 1986; Matson & Wilkins, 2009). In this regard, Matson and Wilkins (2009) refer to an exponential increase in the literature on the assessment and training of children's social skills.

Despite the popularity and perception of the importance of this construct by child psychologists (Gresham, 1986), issues and ambiguities are highlighted regarding the lack of unanimity in its definition and conceptualization (Gresham, 1986; Kwon, Kim, & Sheridan, 2012; Merrell & Gimpel, 1998; Walker, Irvin, Noell, & Singer, 1992). One of the reasons cited for this difficulty in reaching a consensus about the definition of this construct lies "in the difficulty to define and establish a universally accepted set of social skills" (Lopes et al., 2006, p. 15). For example, in a review of the social skills definitions between 1973 and 1988, Merrell and Gimpel (1998) found 15 different definitions in the literature, a diversity justified by the variety of interventional strategies used in this context (e.g., training in skills of social interaction, skills training related to academic success) by professionals from different areas (e.g., special education, psychology, psychiatry, social work), each discipline presenting a unique perspective in the comprehension of this construct (Merrell & Gimpel, 1998).

This difficulty of defining the social skills construct, as well as the frequent confusion between the terms social skills and social competence, result in these two concepts often being used indiscriminately (Gresham, 1986; McFall, 1982; Merrell, 2008; Pedro & Albuquerque, 2007). It is therefore important to differentiate these concepts, with social skills being defined as specific behaviors that allow the individual to present competent performance in particular social tasks, such as making friends, while social competence represents an evaluative generalization with reference to the quality or appropriateness of the individual's performance in a task, situation, or social context (McFall, 1982). Currently, the emphasis on the child or on the behavior instead of the context or informant has aroused the interest of the scientific community in the definition and assessment of these two constructs (Kwon et al., 2012). Due to the lack of social skills rating scales adapted and validated for preschoolers, this article presents a study of the factor validity of the Portuguese version of a social skills scale aimed at children of preschool age.

Assessment of Social Skills in Preschool Children

There is evidence in the literature which suggests that social competence predicts long-term social adjustment and is a key factor for development and school adjustment (Arnold, Kupersmidt, Voegler-Lee, & Marshall, 2012;

Bornstein, Hahn, & Haynes, 2010; Denham, Wyatt, Bassett, Echeverria, & Knox, 2009; Kwon et al., 2012), as well as for family life and life in general (Arslan, Durmuşoğlu-Saltali, & Yilmaz, 2011). Furthermore, the ability to interact successfully with peers and significant adults is one of the most important aspects of the children's development (Anme et al., 2013; Arslan et al., 2011.; Bornstein et al., 2010; Wang, Sandall, Davis, & Thomas, 2011), especially in what concerns socialization (Anme et al., 2013; Arslan et al., 2011; Kwon et al., 2012; Lopes et al., 2006). In this sense, the preschool period proves to be crucial for the assessment of social skills, as various aspects of social behavior emerge in this phase (Wang et al., 2011), such as an increased emphasis on friendships and status among peers (Denham et al., 2009).

Children with poor social skills are at risk of being marginalized in their social relationships (Arslan et al., 2011) or labeled "socially incompetent" (Bornstein et al., 2010). This evidence justifies the growing interest in the study of disorders associated with social skill deficits diagnosed in the preschool period, such as the Autism Spectrum Disorders (Wang et al., 2011), among others. Thus, the collection of information regarding the socioemotional and behavioral skills of the child can have multiple purposes, such as identifying the presence of a delay in the socioemotional skills, collecting clues to assess the degree of impairment associated with externalizing (Gomes, Crepaldi, & Bigras, 2013) and/or internalizing behavior problems, or even facilitating planning of interventions focused on the potential/positive behaviors of the child (Arnold et al., 2012; Bornstein et al., 2010).

The assessment of social skills can be performed through various evaluation methods, some more beneficial than others, such as direct observation, interviews with parents and teachers, rating scales (reduced cost and rapid application) (Caselman & Self, 2008; Wang et al., 2011), self-report instruments (difficult to implement in the preschool age), sociometric approaches, and projective techniques (Merrell, 2008; Wang et al., 2011). In recent decades rating scales have been developed that were specifically designed to assess preschoolers' social skills (Merrell, 2008; Wang et al., 2011). In this context the Social Skills Rating System (SSRS) Preschool Level (Gresham & Elliott, 1990) may be cited, reissued as the Social Skills Improvement System (SSIS) Rating Scales (Gresham & Elliott, 2008) and considered the most popular test in the assessment of children's social skills (Matson & Wilkins, 2009). Also, the Ages and Stages Questionnaires - Social Emotional (ASQ-SE) (Squires, Bricker, & Twombly, 2002) and the Preschool and Kindergarten Behavior Scales – 2nd edition (PKBS-2) (Merrell, 2002a) are prominent.

In Portugal studies have emerged in the context of evaluating the social skills of school age children and adolescents, focusing on instruments such as the SSRS (Gresham & Elliott, 1990), the student self-report version of

which was translated and the target of a set of psychometric studies (Pedro & Albuquerque, 2007). Currently there are ongoing studies of adaptation and validation for the Portuguese population of the School Social Behavior Scales – Second Edition (SSBS-2) (Merrell, 2002b), aimed at students of the 1st to 12th grades (Raimundo et al., 2012). With respect to social skills evaluation instruments for the preschool age, translation, adaptation and validation studies of the PKBS-2 (Merrell, 2002a) were developed between 2006 and 2011 for the Portuguese preschool population (Major, 2011; Major & Seabra-Santos, in press). The PKBS-2 is a behavior rating scale specifically designed to assess social skills and behavior problems manifested in the family and school settings, for children from 3 to 6 years of age (Merrell, 2002a, 2008). The Social Skills scale consists of 34 items related to adaptive or positive behaviors, divided into three subscales: Social Cooperation, with 12 items related to following instructions from adults and cooperation with peers; Social Interaction, with 11 items related to social adjustment in order to gain and maintain the acceptance and friendship of peers; and Social Independence, with 11 items related to adjustment among peers and acquisition of social independence within the group (Merrell, 2002a).

The interest in conducting studies using confirmatory factor analysis lies in the fact that this represents an analytical reference tool in the development and refinement of assessment instruments, which provides evidence regarding the respective construct validity (Jackson, Gillaspy, & Purc-Stephenson, 2009). Therefore, seeking to overcome the limitation highlighted in the literature, related to the shortage of social skills rating scales aimed at preschool children (Wang et al., 2011), and given the few studies of adaptation and validation of social skills assessment instruments in Portugal, using methods of confirmatory factor analysis (Raimundo et al., 2012), the aim of this article is to present a factor validation study of the Portuguese version of the Social Skills scale of the PKBS-2.

Method

Participants

In the present study the normative sample from the adaptation and validation studies of the PKBS-2 for the Portuguese population (Major, 2011) was used, which included 1000 children aged 3 to 6 years ($M = 4.50$ years, $SD = 1.12$), each evaluated by one informant in the family context and by another in the school context ($N = 2000$). This sample was stratified considering several variables of the children, namely age (250 children aged 3, 4, 5 and 6 years, respectively) and gender (50% female and 50% male). Children living in all the geographic regions of Portugal were included: North, Centre, Lisbon, Alentejo, Algarve and the Autonomous regions of the Azores and Madeira; and children attending educational institutions of various types: (a) public

schools, (b) Private Institutions of Social Solidarity (IPSS) or Social Work, and (c) private schools. Once the normative data available in the PKBS-2 manual (Merrell, 2002a) and later developed for the Portuguese version (Major, 2011) were defined according to the context where the scales were completed (family/school), the total normative sample was split into two subsamples for the validation studies. Therefore, the first subsample referred to the forms collected exclusively in the family context ($n = 1000$), which were completed by a total of 834 mothers, 118 fathers and the rest by mothers and fathers together or other child caretakers ($n = 48$). The second subsample consisted of the same 1000 children, however, now evaluated in the school context by 131 (average of eight scales completed per teacher), mostly female (98.5%), kindergarten teachers.

Instrument

The Portuguese version of the PKBS-2 was used, which was given the designation of *Escalas de Comportamento Para a Idade Pré-Escolar, 2ª Edição* - ECIP-2, previously translated and adapted (Major, 2011; Major & Seabra-Santos, in press), composed of 80 items divided into two scales (34 items in the Social Skills scale and 46 items in the Behavior Problems scale). Given the space available, this article focuses only on the Social Skills scale.

After the translation, adaptation and backtranslation of the items of the original version (Major, 2011; Major & Seabra-Santos, in press), the exploratory factor analysis studies confirmed the American structure, suggesting that the 34 items of the Social Skills scale are distributed within three subscales: Cooperation/Social Adjustment (11 items, e.g., "Follows rules"), Social Interaction/Empathy (10 items, e.g., "Comforts other children who are upset") and Social Independence/Assertiveness (13 items, e.g., "Makes friends easily"). In relation to the original version, item 24 was removed from the Social Interaction subscale, "Seeks comfort from an adult when hurt", given its poor psychometric functioning, also observed by Wang et al. (2011). In the Portuguese version item 35 was added ("Offers to help other children when needed"), with a factor loading in the same subscale to which item 24 belonged. Each item is rated with reference to the observation of the child's behavior in the previous three months, according to a 4 point Likert scale from 0 (*Never*) to 3 (*Often*).

With a large normative sample (3313 children), good psychometric properties of the original version of this Social Skills scale were evident, namely its internal consistency analyzed for the total sample, family and school context (Cronbach's alpha coefficient values for the total score ranging from .93 to .96; and between .81 and .94 for the three subscales). With regard to the confirmatory factor analysis studies, the author obtained a stable structure for the Social Skills scale: $\chi^2 (524) = 5185.23$, $p < .001$; $AGFI = .98$ (Merrell, 2002a).

Procedure

Data collection. After obtaining permission for the study from the delegations for the entire country of the Regional Director of Education, and of the Director General for Innovation and Curricular Development, the random selection of the educational institutions and, in each institution, of the participating children by grade was carried out. The teachers were given two copies of the ECIP-2 per child: one for the teachers and one for parents, the latter in an envelope containing a letter presenting the project and the informed consent form. The protocols were collected through the teachers, who delivered the envelope to the children's parents, and also completed their scales and returned the material to the researcher after the parents returned the sealed envelope.

Data analysis. Using the statistical program IBM SPSS Amos version 20 studies of confirmatory factor analysis (CFA) were made for the Social Skills scale of the ECIP-2, through the maximum likelihood estimation method with the three factors correlated with each other. In order to analyze the invariance of the model obtained, analyzes were performed for all the protocols ($N = 2000$) and independently replicated for the samples collected in the family and school contexts.

Initially the studies were conducted with the 34 items of the Social Skills scale. Subsequently, in order to improve the fit indices of the model and trying to overcome the lower reliability of the items individually analyzed in CFA studies (Little, Cunningham, Shahar, & Widaman, 2002), the items included in the three subscales previously defined (Major, 2011; Major & Seabra-Santos, in press) were grouped into parcels by summing sets of three to four items (three to four parcels per subscale) representing an aggregate index of the constructs assessed by each subscale (item parcels) (Little et al., 2002). To ensure the most equitable distribution of the items within the parcels, the factor loadings obtained in the exploratory factor analysis studies served as a guide for the item distribution (Little et al., 2002). Thus, by way of example, using the item-to-construct balance procedure, the three items with the highest factor loading in the Cooperation/Social Adjustment (CSA) subscale served as an anchor to construct the three parcels (CSA1, CSA2 and CSA3). Following this, the next three items were added to the three parcels, however, now in reverse order, so that the item with the highest factor loading, of this second distribution, was added to the parcel that previously obtained the item with the lowest factor loading. This procedure was repeated until exhausting the 11 items of this subscale, and was replicated for the 10 items of the Social Interaction/Empathy (SIE) subscale, and the 13 items of the Social Independence/Assertiveness (SIA) subscale.

Although there is no consensus in the literature regarding the model fit indices to present in CFA studies (Hu & Bentler, 1999; Jackson et al., 2009; Marôco, 2010), the following goodness-of-fit indices were used: Chi-Square (χ^2) and the Chi-Square and degrees of freedom ratio (χ^2/df).

The Goodness of Fit Index (GFI), the Comparative Fit Index (CFI) and the Root Mean Square Error of Approximation (RMSEA) were also used, with the respective confidence interval (CI) of 90% (Jackson et al., 2009; Marôco, 2010). The cutoff points are also the subject of some disagreement (Jackson et al., 2009). Therefore, a good model fit can be assumed when the χ^2 has a small value associated with a level of significance higher than .05 and χ^2/df less than 2 (Marôco, 2010). Although values above .90 for the CFI and GFI and less than .10 for the RMSEA can be considered as synonymous with a good fit of the model to the data (Byrne, 2010; Marôco, 2010), more demanding approaches propose, for the maximum likelihood method, a cutoff of .95 for the CFI and GFI and close to .06 for the RMSEA (Hu & Bentler, 1999). The information provided based on the modification index used in the study (comparison of χ^2 of modified models) was complemented with theoretical evidence when making the changes in order to achieve a better model fit (Pilati & Laros, 2007).

Using the IBM SPSS Statistics 20 program, the descriptive statistics of each parcel were analyzed, as well as their sensitivity through the kurtosis and skewness values. Pearson's correlation coefficients were calculated between each parcel and the respective subscale and also between each parcel and the total score of the Social Skills scale. For the studies of internal consistency Cronbach's alpha coefficient (Kline, 1998) was used and the calculation of composite reliability (CR), indicative of the degree to which the items are representative of the latent factor, as an alternative measure to Cronbach's alpha. This indicator was calculated by dividing the square of the sum of the standardized factor loadings for each parcel, by the same amount added to the error associated with each parcel (Marôco, 2010).

Ethical Considerations

The authorization necessary for the use of the PKBS-2 was obtained, and the study was approved by the National Data Protection Commission (Case No. 3222/2006), the Portuguese entity responsible for research ethics. When collecting the sample, permission was requested from the parents to participate in this study, and both them and the teachers were informed about the aims of the research and the voluntary nature of their participation, with confidentiality and anonymity regarding the data collected guaranteed. Permission was also requested from the parents for the child's teacher to also complete the ECIP-2. The scales completed by the parents were returned in a closed envelope, in order to safeguard the confidentiality of their responses.

Results

The initial CFA studies conducted with 34 items of the Social Skills scale indicated adequate values for the standardized factor loadings, situated between .31 and .74, with correlations between the three factors from .51 to .76,

as illustrated in Figure 1. However, the majority of the model fit indices were considered unacceptable, χ^2 (524) = 5447.74, $p < .001$; $\chi^2/df = 10.40$; $CFI = .81$; $GFI = .84$; $RMSEA = .07$. Even after the introduction of changes resulting from the modification indices, an improvement in the model was not noted, with the reference values not being achieved ($\Delta\chi^2 = 966.95$; $\Delta CFI = .04$), which led to the development of new CFA studies with parcels.

From the analysis of the descriptive statistics of the 10 parcels constructed for the Social Skills scale, presented in Table 1, it was concluded that the CSA2 parcel presented a higher mean ($M = 9.98$, $SD = 1.70$), with lower values obtained for the CSA3 parcel ($M = 7.09$, $SD = 1.45$). The values of skewness (Sk) (all negative) and kurtosis/flatness (Ku) met the assumption of normality ($|Sk| < 3$ and $|Ku| < 10$) (Marôco, 2010). All these indicators are presented as adjusted and indicate the adequate functioning of the parcels considered.

Table 1
Descriptive Statistics of the Parcels of the Social Skills Scale of the ECIP-2: Total Sample (N = 2000)

Parcels	M	SD	Minimum	Maximum	Skewness	Kurtosis
CSA1	9.48	1.84	2	12	-0.58	0.06
CSA2	9.98	1.70	0	12	-0.91	1.20
CSA3	7.09	1.45	1	9	-0.54	0.19
SIE1	9.52	1.94	0	12	-0.87	1.00
SIE2	7.77	1.39	0	9	-1.23	1.53
SIE3	7.35	1.59	0	9	-1.25	2.10
SIA1	9.84	1.75	3	12	-0.84	0.70
SIA2	7.91	1.27	0	9	-1.45	2.62
SIA3	7.31	1.39	0	9	-0.84	0.87
SIA4	8.06	1.18	2	9	-1.52	2.61

Note. CSA = Cooperation/Social Adjustment; SIE = Social Interaction/Empathy; SIA = Social Independence/Assertiveness.

The CFA study using the parcels suggests an acceptable model fit, χ^2 (32) = 530.64, $p < .001$; $\chi^2/df = 16.58$; $CFI = .96$; $GFI = .95$; $RMSEA = .09$. The analysis of the modification indices indicated the need for the integration of the correlation between the errors of parcels 7 (e7) and 10 (e10) ($r = .25$), which resulted in a slight improvement in the model fit, with all the parameters statistically significant: χ^2(31) = 437.41, $p < .001$; $\chi^2/df = 14.11$; $CFI = .96$; $GFI = .96$; $RMSEA = .08$ (90% $CI = .07 - .09$). Figure 2 shows that all the standardized factor loadings of the 10 parcels were above .60: between .78 and .86 for the CSA factor, between .82 and .84 for the SIE factor, and between .61 and .83 for the SIA factor. The three factors presented correlations between themselves of .62 to .79 ($p < .001$). The correlations between each parcel and the respective subscale (CSA, SIA and SIE) ranged from .75 to .91, and the correlations between each of the 10 parcels and the total score of the Social Skills scale presented values from .61 to .80.
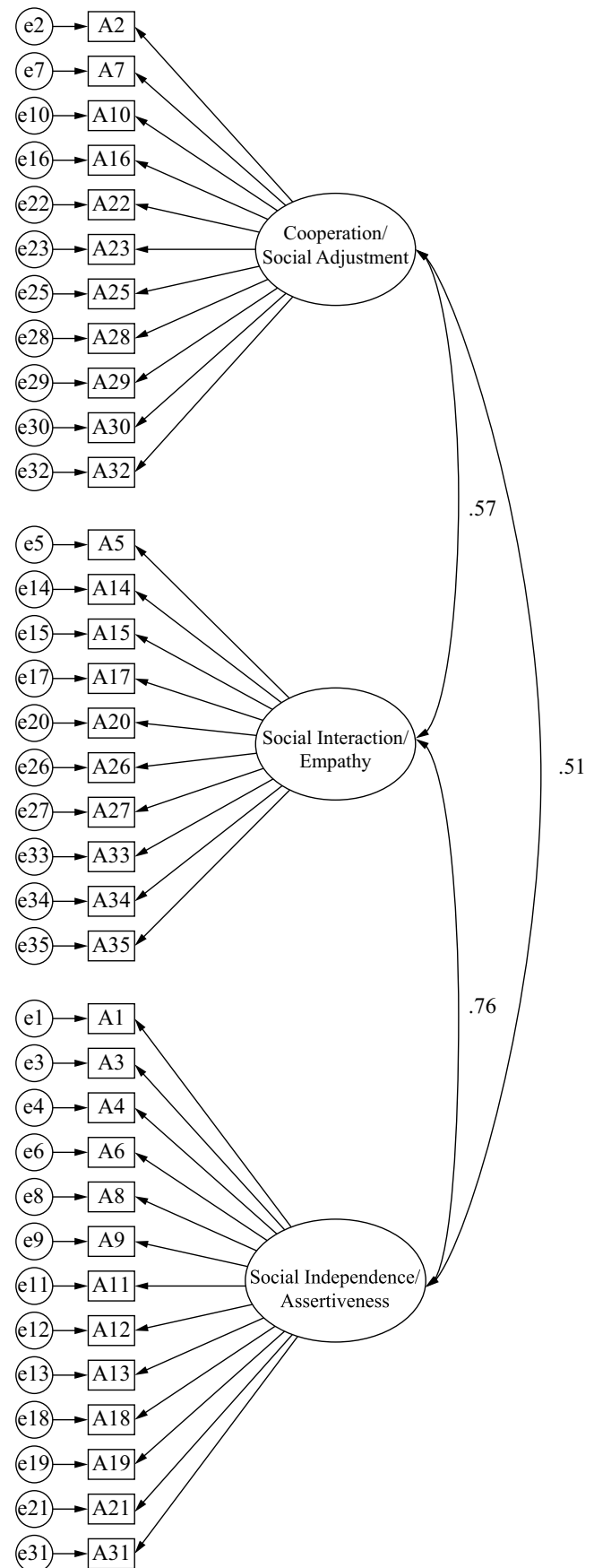

Figure 1. Confirmatory factor analysis of the Social Skills scale of the ECIP-2 (34 items).
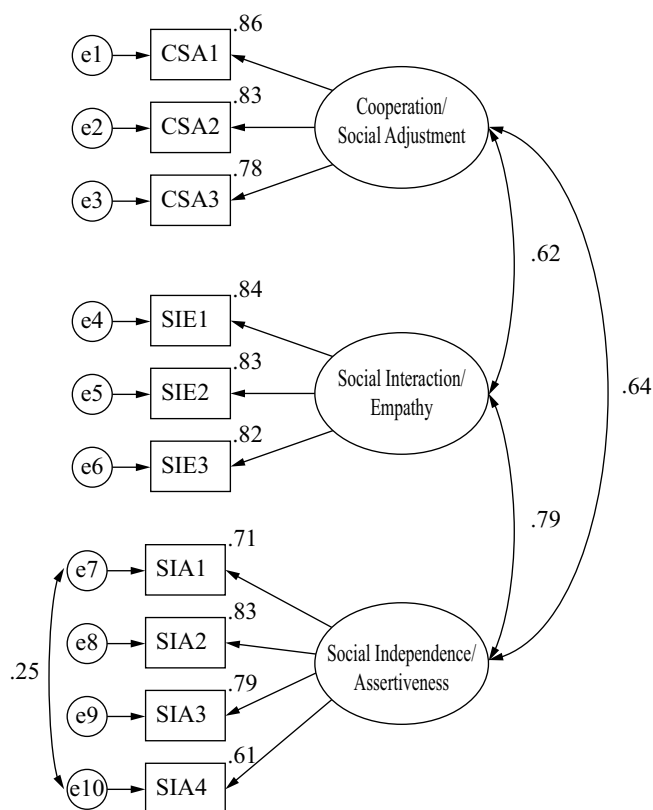
Figure 2. Confirmatory factor analysis of the Social Skills scale of the ECIP-2 (Final parcels model).

The model of 10 parcels for the Social Skills scale presented an acceptable fit considering the samples collected in the family context: $\chi^2(31) = 159.97$, $p < .001$; $\chi^2/df = 5.16$; $CFI = .96$; $GFI = .97$; $RMSEA = .07$; and school context: $\chi^2(31) = 272.79$, $p < .001$; $\chi^2/df = 8.80$; $CFI = .97$; $GFI = .95$; $RMSEA = .09$. The factor loadings of the parcels in the respective factors ranged from .54 and .76 for the sample collected in the family context and from .65 and .93 for the school context.

Table 2 shows the results of the internal consistency studies conducted with the 34 items for the three samples studied. The Cronbach's alpha coefficients for the Social Skills scale total score always reached a value of .90 or higher, considered excellent (Kline, 1998), except for the forms collected in the family context ($\alpha = .88$). When considering the three Social Skills subscales, all the values obtained were above .80, except, again, for the sample collected in the family context. A comparison of these coefficients considering the 10 parcels indicated values very close to the ones obtained for the 34 items, both for the full scale ($\alpha = .86$ to .92), and for the three subscales ($\alpha = .74$ to .89). The differences in relation to the Cronbach's alpha values for the 34 items were very low, ranging from .01 (for 6 of the 12 comparisons) and .03 (e.g., α of the total scale for the school context).

All the CR coefficients were higher than the reference value of .70 (Marôco, 2010), ranging between $CR_{\text{SIA Family Context}} = .82$ and $CR_{\text{CSA and SIE School Context}} = .94$.

Discussion

The assessment of the social-emotional functioning of preschool age children, although relatively recent, is an increasingly studied area, and has been shown to have a strong potential for school/clinic intervention and research. This study sought to overcome the focus on the child's difficulties (behavior problems), and to investigate their potentials (social skills), using CFA methodologies, considered by Jackson et al. (2009) as an indispensable statistical tool for studies associated with construct evidence, namely in the development of rating scales. In this sense, this study sought to validate the factor structure of the Portuguese version of the Social Skills scale of the PKBS-2 (Merrell, 2002a), with the difficulty and complexity of definition and conceptualization of the social skills construct, reported in the literature (Gresham, 1986; Merrell & Gimpel, 1998), eventually becoming apparent in the CFA studies. Therefore, the complexity of the items led to the reproduction of the CFA studies using parcels. Although considered a controversial practice and a target of debate in the scientific community, based on the under-representation of the model or the appropriateness of the use of normative data based on parcels (Little et al., 2002), the use of parcels in CFA studies has been increasingly implemented in this kind of research (Raimundo et al., 2012).

Therefore, the most common method of estimation in the literature was used (Jackson et al., 2009), the maximum likelihood, and the procedures suggested in the PKBS-2 manual were followed, by testing the model fit not only for the entire sample but also for

Table 2
Internal Consistency Calculated for the Items and Parcels: Total Sample, Family and School Context

Social Skills Score	Total Sample ($N = 2000$)			Family Context ($n = 1000$)			School Context ($n = 1000$)		
	α items	α parcels	CR parcels	α items	α parcels	CR parcels	α items	α parcels	CR parcels
CSA	.87	.86	.92	.81	.80	.88	.90	.89	.94
SIE	.87	.86	.92	.77	.76	.85	.90	.89	.94
SIA	.85	.83	.89	.76	.74	.82	.89	.87	.92
Total	.93	.90	-	.88	.86	-	.95	.92	-

Note. CSA = Cooperation/Social Adjustment; SIE = Social Interaction/Empathy; SIA = Social Independence/Assertiveness; Total = Total Social Skills scale; *CR* = Composite Reliability.

each completion context. Obtaining indices below those expected in the initial CFA studies subsequently led to the development of 10 parcels for the Social Skills scale. The values obtained for the descriptive statistics of the 10 parcels were within expectations, as were the negative values obtained for the skewness of the distribution of the results, considering the evaluated construct - social skills – since, there is a tendency for the children to be given high scores in these positive behaviors, which is consistent with the PKBS-2 manual (Merrell, 2002a). The moderately high correlations between the three subscales justify the choice of the model studied.

Given the high sensitivity of χ^2 to the sample size, this index becomes less useful when determining the model fit with large samples (Byrne, 2010), hence this parameter does not correspond to the expected values for a good model fit. Through the use of the parcels the *GFI* and *CFI* correspond to the most rigorous approaches (Hu & Bentler, 1999). However, the RMSEA values were within the acceptable level of fit (Byrne, 2010; Marôco, 2010). The similarity between the theoretical content of the items (Marôco, 2010; Pilati & Laros, 2007) that make up the SIA1 and SIA4 parcels (feeling at ease in social situations) led to the analysis of the modification indices that, in turn, suggested the establishment of a correlation between the errors associated with these parcels.

Regarding the internal consistency results, the overall inspection of this block of results allows the conclusion that all the values of reliability achieved are between the levels of excellent (.90) and very good (.80) proposed by Kline (1998). Although slightly higher values were obtained in the original version of the PKBS-2, the values for the two versions are very close. For the family context the coefficients were lower than those obtained with the total sample, whereas for the school context they were higher, in concordance with the pattern of results obtained for the PKBS-2. A comparison of the internal consistency indices considering the data at the item-level compared to the aggregate-level (Little et al., 2002) allows the conclusion that, despite the use of parcels leading to a decrease of approximately one-third in the number of variables (34 items of the Social Skills scale reduced to 10 parcels) the values obtained are very stable and close, which represents a favorable result for the use of parcels in the CFA studies of the Portuguese version of the PKBS-2. The results obtained for the composite reliability provide evidence for the adequacy of the factor structure studied.

Since measuring the success of an intervention directly depends on the efficacy of the assessment, the development of standardized methods that facilitate clinical decision making, enable a rigorous, objective, evaluative task, and developmentally appropriate for the preschool population is becoming recognized as crucial (Caselman & Self, 2008; Wang et al., 2011). In conclusion, the development of instruments to assess social skills and the increased interest in this area reflect the importance of this construct in different

contexts (family, school, clinical practice, research) (Walker et al., 1992). In this sense, the present study reinforced the grouping of items into three factors that composed the Social Skills scale of the instrument both in its original English form and in the version adapted and validated for Portuguese children. Simultaneously, it highlights the potential of the Portuguese version of the PKBS-2, a behavior rating scale developed specifically for this age group, with items that can be rated by parents and teachers. Thus, the set of results obtained with the Portuguese version of the Social Skills scale are evidence for the factor validity of this instrument, as "the items measure the latent factor that was intended to be measured" (Marôco, 2010, p. 175).

Conclusion

This study reflects the growing interest in the social behavior of children verified in the international literature and represents a further contribution to the increase of studies in this field (Caselman & Self, 2008; Matson & Wilkins, 2009), by providing a behavior rating scale specifically aimed at assessing preschoolers' social skills, which can be used in Portuguese-speaking countries. In this sense, this study has a number of relevant practical implications, as well as implications for future research. The provision for the preschool population of a tool that can be used by parents and teachers, relative to the two contexts in which children spend most of their time, can support the sometimes vague concerns of the adults (Denham et al., 2009), based on the results obtained using a reliable assessment instrument. The stability of the model tested in the CFA studies with the sample in the family and school context represents an advance in the evidence for the factor validity of this scale.

Despite the potential of the study, it should be highlighted that the total sample studied was derived from the inclusion of the forms collected in the family and school context for the same children, even though this was the same as the procedure followed in the original version. Furthermore, the use of parcels in the CFA studies does not represent the most common practice in this type of study. Therefore, future replication studies of the factor structure considering other variables, such as the gender and age of the children, and with new independent samples (external validation studies) (Marôco, 2010) could reinforce the results presented here. Conducting cross-cultural studies in Portuguese-speaking countries (e.g., Angola, Brazil), also represents a way forward.

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