



# Confirmatory factor analysis of the PKBS-2 subscales for assessing social skills and behavioral problems in preschool education

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## Abstract

**Introduction.** Different research studies point out the importance of social competence as a protective factor against antisocial behavior. They likewise alert us of the importance of having valid, reliable instruments that measure these constructs in early childhood.

**Method.** The objective of this research is to validate the subscales of the *Preschool and Kindergarten Behavior Scale* (PKBS-2) and to propose a structural model thereof. A total of 1509 pupils from preschool education participated in this study. The data was analyzed using EQS 6.1 for the confirmatory factor analysis and SPSS 15.0 for the descriptive analyses.

**Results.** The results reveal good fit indexes, high saturations and adequate internal consistency levels for the subscales of the Social Skills scale and of the Behavior Problems scale.

**Discussion and conclusions.** The results show high reliability in terms of internal consistency, making the scales applicable in different contexts and specifically with Spanish samples. We observe that the two variables that make up the instrument can be measured independently and separately, yielding double information from the single questionnaire.

**Keywords:** *preschool education, measuring behaviour problems, measuring social competence, PKBS-2*

*Received:* 05/10/10    *Initial Acceptance:* 05/10/10    *Final Acceptance:* 07/29/10

## Resumen

**Introducción.** Diferentes investigaciones ponen de manifiesto la importancia de la competencia social como factor de protección frente al comportamiento antisocial. Del mismo modo, alertan de la importancia de contar con instrumentos válidos y fiables que permitan medir estos constructos en edades tempranas.

**Método.** El objetivo de la investigación es validar las subescalas y proponer un modelo estructural de la *Preschool and Kindergarten Behavior Scale – PKBS-2*. En el estudio participan 1509 niños y niñas de educación infantil. Los datos se analizan con el programa EQS 6.1 para la realización del análisis factorial confirmatorio y con el SPSS 15.0, para llevar a cabo análisis descriptivos.

**Resultados.** Los resultados obtenidos señalan buenos índices de ajuste, saturaciones elevadas e índices de consistencia interna adecuados tanto para las subescalas correspondientes a la escala de habilidades sociales como para las correspondientes a la escala de problemas de conducta.

**Discusión y conclusiones.** Los resultados muestran una elevada fiabilidad en términos de consistencia interna lo que facilita su aplicabilidad en diferentes contextos y específicamente con población española. Se observa que las dos variables que forman el instrumento pueden medirse de manera independiente y por separado lo que permite obtener una información doble con un único cuestionario.

**Palabras Clave:** *educación infantil, medida de problemas de conducta, medida de competencia social, PKBS*

*Recibido:* 10/05/10    *Aceptación Inicial:* 10/05/10    *Aceptación Definitiva:* 29/07/10

## Introduction

The socioemotional development of the child, and his or her ability to establish positive interpersonal relationships with peers and with adults, are topics of great interest today, in both the social arena and in scientific research (Gotzens, Badia, Genovard & Dezcallar, 2010; López de Dicastillo, Iriarte & González-Torres, 2008; Merrell & Harlecher, 2008; Monjas, 1994). Proof of this is the plentiful literature to be found in this field. Moreover, the last fifty years have seen a change in orientation and content in such publications: during the second half of the 20<sup>th</sup> century, the topics were examined from a clinical perspective, whereas the present perspective focuses on education and formation of the person, as well as on preventive intervention from as early as preschool age.

There are reasons to justify the increase of theoretical and empirical studies, as well as the change in perspective about a person's socialization process and the behavior problems that may appear. According to Trianes, Sánchez and Muñoz (2001: p. 74), "social competence is an important aspect of the construction of a person, since it involves learning how to be and how to live in a socio-cultural medium" and, at the same time, "it is a crucial psychological structure in healthy psychological functioning, in complex relationship with cognitive, social and moral development, since certain components are acquired over the course of human development". For López de Dicastillo and collaborators (2008), the importance of interpersonal relationships in daily life, the characteristics of present-day society which values individual goals and objectives over shared ones, the personal and social benefits of developing socially competent behaviors as well as the need to avoid problems stemming from social incompetence, are more than enough reason to spark social interest in these topics and to trigger the plentiful scientific literature that addresses them.

There is no single definition of social skills that is generally accepted, although most definitions include positive social behavior and equally positive results and consequences (Merrell, 1995a). The original research studies in this arena focused in two directions. According to Furnham (1985), training in social skills in the United States is rooted in clinical psychology and psychology practice, but in Europe this

research is more connected to social psychology. While the American route arises primarily from the work of therapists, like Wolpe, and from the studies of social competence by Phillips and Zigler, European research originated from ergonomics and social psychology (Gismero González, 2000). This initial situation lent itself to the appearance of an ongoing confusion in terms, using different expressions as synonyms. According to López de Dicastillo, Iriarte and González Torres (2008: p. 23), “social competence is a multidimensional concept that includes the mastery of a set of behavioral social skills, as well as socio-cognitive processes (social knowledge, attributions, self-concept, expectations, taking perspective) and of affective processes (expression, understanding, regulation of emotions and empathy), aimed toward achieving greater personal maturity and the development of qualities that make people and society better”.

But the fact that there is no concrete definition of social competence accepted by the whole scientific community is not an obstacle to unanimity in recognizing the characteristics of people who are competent in the sphere of social development and interpersonal relationships. And although most of the studies on developing social skills in children have focused on school age children, there is a conviction that the learning of these skills ought to be initiated in preschool, due to their implications for well-adjusted future behavior (McGinnis & Goldstein, 1990).

Social competence, therefore, is framed within the person’s adaptive behavior, while behavior problems are related to maladaptive behavior. Studies from recent years on socioemotional development highlight two categories of behaviors related to social skills problems: externalizing problems (aggressive behavior, attention and hyperactivity) and internalizing problems (anxiety, depression, shyness) (Cicchetti & Toth, 1991; Merrell, 1995a). Reyna and Brussino (2009) report how a 2007 study from the National Health Ministry and the Academic Units of Psychology of Argentine Universities encountered 14.6% of pupils presenting internal behavior problems and 14.9% external behavior problems, in a sample of 5697 children between the ages of 6 and 11. From this they deduce the need to respond to childhood behavior from a preventive approach and with early attention to maladaptive behaviors.

Since it is important to study the relationship between social competence and childhood behavior problems as well as to detect these problems early on, with early intervention and personal guidance, we must keep in mind the issue of measuring these constructs from an early age and the requirement for adequate instruments to do so (Jenetzsch & Merrell, 1996; Merrell, 1995a, 1995b). Certain problems exist, such as the relative lack of instruments for these ages, the fact that many instruments being used have poor technical and psychometric characteristics, and how objective information must be obtained through scales and informers (Merrell, 1995b). We must address these serious concerns about the low validity and reliability of the instruments, as well as inadequate standardization of procedures (Holland & Merrell, 1998; Merrell 2005).

López de Dicastillo, Iriarte and González Torres (2008) offer an ample listing of instruments that assess social competence (in English), compiled from work by Caballo (1993), Merrell and Gimpel (1998), Monjas (1994), Paula (2000), Trianes, De la Morena and Muñoz (1999), Vallés and Vallés (1996), and others. Carney and Merrell (2002) give positive ratings to three different instruments in their article on the reliability and validity of the *Preschool and Kindergarten Behavior Scales*, Spanish language translation: the *Child Behavior Checklist/Teacher's Report (CBCL)*, by Achenbach (1991); the *Behavior Assessment System for Children (BASC)*, by Reynolds and Kamphaus (1992), and the *Social Skills Rating System (SSRS)*, by Gresham and Elliott (1990). For these authors, each of the three instruments has a different assessment potential, so that their suitability must be evaluated for each case according to its intended purpose: the first two are more oriented toward the area of psychopathology, and the third to social skills routines and behavior problems (only the first two are available in Spanish). Merrell and Harlecher (2008) emphasize the *Child Behavior Checklist-CBCL*, by Achenbach (1991), as one of the most widely used questionnaires, despite its psychopathology orientation. And Matson and Wilkins (2009) indicate that the two most widely used instruments are the *Matson Evaluation of Social Skills with Youngsters (MESSY)*, by Matson, Rotatori and Helsel (1983), and the *Social Skills Rating System (SSRS)*, by Gresham and Elliott (1990).

The *Preschool and Kindergarten Behavior Scales (PKBS)*, by Merrell, were standardized with a sample of 2855 children ages 3 to 6 (Merrell, 1994a, 1996), and their psychometric characteristics were made known in several publications, including

work by other researchers. Regarding the test's reliability, Merrell (1996) obtained indices of .96 for the social skills scale and .97 for behavior problems. Edwards, Whiteside-Mansell, Conners and Deere (2003), using a sample of 1679 children ages 2 to 6, obtained indices of .85 for the social skills scale and .97 for the scale on social skills problems. Whiteside-Mansell, Bradley and Mckelvey (2009) obtain the following: for the information from parents of small children, indices of .90 for the social skills scale, .77 for internalizing problems and .92 for externalizing problems; and for the information from teachers, indices of .96 for the social skills scale, .92 for internalizing problems and .97 for externalizing problems.

Validity of the *PKBS* has been demonstrated through several psychometric procedures. Content validity was demonstrated through moderate to high correlations obtained between individual items and total scores (Merrell, 1996). Construct validity, and other systems, through finding significant correlations with other scales that assess behavior (Merrell, 1995b). And convergent and discriminant validity has been shown in relation to other social behavior scales (Jentsch & Merrell, 1996), measures of observed behavior (Winsler & Wallace, 2002) and scales that assess hyperactivity (Canivez & Rains, 2002; Canivez & Bordenkircher, 2002).

Carney and Merrell (2002) produced the Spanish version of the scale. The correlations (Pearson's  $r$ ) between the two versions of the scale (English and Spanish) were .93 for the social skills scale and .94 for the scale on behavior problems. Internal consistency (Cronbach's  $\alpha$ ) was similar: .93 for the social skills scale and .96 for the behavior problems scale.

In response to the need for suitable instruments to assess social competence and behavior problems in the Spanish preschool population, the objective of this investigation is to analyze the psychometric characteristics of the translation/adaptation to Spanish of the revised version of the *Preschool and Kindergarten Behavior Scale – PKBS* (Merrell, 2002).

## Method

### *Participants*

The sample was made up of 1509 pupils (741 boys and 768 girls), ages 3 to 5 (mean=3.78; sd=.815), from 27 preschools in the city of Granada and its metropolitan area. The same sample was used for cross validation of the results, distributing the total subjects randomly between the derivation sample and the confirmation sample.

Table 1. *Sample distribution according to gender and age*

		3 years	4 years	5 years	Total
Boys	N	370	152	219	741
	% of total	24.5%	10.1%	14.5%	49.1%
Girls	N	403	153	212	768
	% of total	26.7%	10.1%	14.0%	50.9%
Total	N	773	305	431	1509
	% of total	51.2%	20.2%	28.6%	100.0%

### *Instrument*

The scale used is the translation/adaptation to Spanish of the revised version of the *Preschool and Kindergarten Behavior Scale – PKBS* (Merrell, 2002). The objective of the scale is to serve as a psychometrically valid instrument for assessing social skills and behavior problems in children between the ages of 3 and 6 (see appendix 1). It is made up of 76 items for evaluating these parameters, arranged in two differentiated scales.

On one hand, the social skills scale (34 ítems) includes three subscales:

1. **Social Cooperation** (12 ítems). Reflects social adjustment in relationships with adults and peers. Items assess behavioral characteristics that are important for following instructions, cooperation with and commitment to peers, and adequate self-control.
2. **Social Interaction** (11 ítems). This subscale reflects behaviors and characteristics that are important for acquiring and maintaining the acceptance and friendship of others. Items include social adaptation in relationships with peers and adults.



3. **Social independence (11 ítems).** Reflects behaviors and characteristics that are important in realizing social independence within the peer group. Includes the assessment of certain social skills relating to adequate separation from caregiving adults, trust and assertiveness in interaction with others.

On the other hand, the behavior problems scale (42 ítems) assesses behavior problems that have been shown to be common in early childhood. These problems are evaluated through 2 subscales:

1. **Externalizing Problems (27 ítems).** Items describe active, uncontrolled behaviors that are directed toward others and cause disturbance.

2. **Internalizing Problems (15 ítems).** Subscale items assess emotional and behavioral problems related to anxiety, fear and emotional oversensitivity.

Children's behaviors, assessed by the teacher or caregiver, are rated on a 4-point Likert scale ranging from 0 (never) to 3 (often). Thus, high scores on the social skills scale reflect better development of such skills, while low scores on the behavior problems scale reflect the absence of maladapted behaviors.

### *Procedure*

The first step in this research was the translation and adaptation of the original scale from English to Spanish. After linguistic review and layout, a pilot study was performed in order to detect possible errors or comprehension difficulties with the translated items, as well as to rate the scale's performance.

After the pilot study, where no errors or difficulties were found, different schools were contacted in order to determine their interest in administering the questionnaire. After the initial contact, meetings were held with the teachers, and they were informed about the objectives of the study, the characteristics of the scale, and the procedure involved in answering the questionnaire. Once the teachers gave their consent to participate in the study, the parents were informed. Parent information was provided during an informational meeting and through letters that explained the objective and

nature of the study, in order to request their consent for their children to participate in the study.

Questionnaires were distributed to the teachers in the month of November, two months after the initial meeting. The purpose of this period was to reach maximum adaptation between teachers and pupils, and for teachers to gain sufficient knowledge of their pupils for them to more easily respond to the items on the questionnaire. The researchers collected the questionnaires one month later.

### *Statistical Analyses*

Data were analyzed using the *Statistical Package for the Social Sciences* (SPSS) version 15.0, using descriptive techniques for analyzing the kurtosis and asymmetry associated with questionnaire items. Additionally, to perform the confirmatory analysis, the *EQS 6.1* program (Bentler, 2004) was used. Confirmatory factor analysis was based on the *a priori* model established by the author, using analyses carried out by other researchers (Carney & Merrell, 2002, 2005; Edwards, Whiteside-Mansell, Connors, & Deere, 2003; Reyna & Brussino, 2009). Confirmatory factor analysis was carried out for the purpose of validating and confirming the goodness of fit of the *PKBS-2* scales. The fit was evaluated using the chi-squared test, which helps indicate appropriate data-model fit; however, due to its sensitivity to sample size (Eren, 2009; Tomás & Oliver, 2004), it was necessary to complement it with other indices. The absolute fit indices that help determine the degree to which the model predicts the matrix of observed covariances were: *Goodness of Fit Index* ( $GFI \geq .90$ ), *Root Mean Square Residual* ( $RMSR \leq .08$ ) and *Root MSE of Approximation* ( $RMSEA \leq .08$ ). The incremental fit indices that compare the model's fit in relation to the reference model that stipulates no relationship between variables were: *Normed Fit Index* ( $NFI \geq .90$ ), *Comparative Fit Index* ( $CFI \geq .90$ ) and *Adjusted Goodness of Fit Index* ( $AGFI \geq .90$ ). And parsimony indices that indicate the simplicity of the model in relation to the number of free parameters were: *Akaike Information Criterion* (AIC), which reports greater parsimony as its value approaches zero (Lévy & Varela, 2006).

## Results

Descriptive analysis of the items from the Social Skills and Behavior Problems scales shows an adequate distribution of scale items from each scale. It was observed that the items from the social skills scale present negative asymmetry while items from the behavior problems scale present positive asymmetry, just as would be expected. The value of the results supports use of the maximum probability estimator in later confirmatory analyses (Edwards *et al.*, 2003; Muthen & Kaplan, 1985).

In order to rate the feasibility of the factor study, values from the correlations matrix from both scales were analyzed in relation to Bartlett's sphericity test and the Kaiser-Meyer-Olkin (KMO) index. The values from Bartlett's sphericity test for the social skills scale ( $\chi^2=32046.66$ ,  $p<.001$ ) and for the behavior problems scale ( $\chi^2=47088.60$ ,  $p<.001$ ) indicate that the correlations matrix of the population is not an identity matrix. Likewise, values from the KMO test for both scales (.965 and .975, respectively) indicate that factorization of the correlations matrix is feasible.

### *Confirmatory Factor Analysis of the Social Skills subscales*

#### *Social Cooperation subscale*

Results from the *a priori* model of the subscale show inadequate fit indices ( $AGFI=.877$  and  $RMSEA=.094$ ). The standardized solution allows us to observe the factor saturation of each item and its error associated with the unexplained variance. As a filtering process, we chose to eliminate those items with saturation  $<.40$  and error  $>.80$ . Similarly, in order to understand the relationship between variables that help the model fit, we used the Lagrange Test, which evaluates what parameters, when fixed to zero, would cause significant improvement in the global fit. According to the above criteria, no item was eliminated, and covariance of the residuals of item 30, "takes turns to use toys or other objects" was established with residuals of item 25 "shares toys and other belongings", and covariance of the residuals of item 2 "is cooperative" with those corresponding to item 12 "makes good use of free time" and 25. After making these changes, the results show adequate fit indices (Table 2):  $\chi^2=434.815$ ,  $df=51$ ,  $p<.001$ ;

$AIC=332.815$ ;  $NFI=.959$ ;  $CFI=.964$ ;  $GFI=.952$ ;  $AGFI=.927$ ;  $RMSR=.031$ ;  $RMSEA=.071$ ;  $\alpha=.925$ .

#### *Social Interaction subscale*

The initial model established for the social interaction subscale presents inadequate fit indices ( $NFI=.876$ ;  $CFI=.881$ ;  $GFI=.873$ ;  $RMSEA=.123$ ). After considering the criteria mentioned above, no item was eliminated. We established the relationship between the residuals of item 21 “*invites other children to play*” with those of items 33 “*is sensitive to the children’s problems*” and 34 “*shows affection to other children*” respectively, and the covariance between item 15 “*asks an adult for help when needed*” with the residuals of item 14 “*participates in family or school conversations*” and item 24 “*seeks support from an adult when he or she feels bad*”. After considering these changes, the results produce adequate fit indices (Table 2):  $\chi^2=425.260$ ,  $df=40$ ,  $p<.001$ ;  $AIC=345.260$ ;  $NFI=.950$ ;  $CFI=.954$ ;  $GFI=.947$ ;  $AGFI=.912$ ;  $RMSR=.043$ ;  $RMSEA=.079$ ;  $\alpha=.907$ .

#### *Social Independence subscale*

The social independence subscale also did not present adequate fit in relation to the *a priori* model ( $NFI=.878$ ;  $CFI=.883$ ;  $GFI=.895$ ;  $RMSEA=.111$ ). Following the established criteria, we eliminated item 1 “*is independent when playing and working*” and item 26 “*defends his or her rights*”. Additionally, we established covariances between residuals: those of item 11 “*other children invite him/her to play*” with those of item 6 “*is accepted and liked by the children*”, those of item 3 “*laughs and has fun with other children*” with those of item 4 “*plays with different children*”, and item 18 “*adjusts well to different circumstances*” with those of items 8 “*tries to do the task without asking for help*” and 31 “*appears to be secure in social situations*”. The results obtained after considering these changes produce adequate fit indices (Table 2):  $\chi^2=194.321$ ,  $df=23$ ,  $p<.001$ ;  $AIC=148.321$ ;  $NFI=.969$ ;  $CFI=.973$ ;  $GFI=.972$ ;  $AGFI=.945$ ;  $RMSR=.039$ ;  $RMSEA=.070$ ;  $\alpha=.878$ .

Table 2. *Social Skills subscales, fit and reliability indices*

Subscale	$\chi^2$	df	AIC	NFI	CFI	GFI	AGFI	RMSR	RMSEA	$\alpha$
Social Cooperation	434.815*	51	332.815	.959	.964	.952	.927	.031	.071	.925
Social Interaction	425.260*	40	345.260	.950	.954	.947	.912	.043	.079	.907
Social Independence	194.321*	23	148.321	.969	.973	.972	.945	.039	.070	.878

\* $p < .001$

### **Confirmatory Factor Analysis of the Behavior Problems subscales**

#### *Externalizing Problems subscale*

Results with the *a priori* model of the subscale show inadequate fit indices ( $NFI=.837$ ;  $CFI=.846$ ;  $GFI=.739$ ;  $RMSEA=.100$ ). In accordance with the criteria given above, no items were eliminated from the subscale. However, relationships between residuals were established for: item 1 “*acts impulsively, without thinking*” with items 16 “*disobeys the rules*”, 20 “*is very active, unable to stay still*” and 25 “*is restless and mischievous*”; item 26 “*insults classmates*” with items 3 “*ridicules and makes fun of others*” and 21 “*is vengeful with the other children*”; item 29 “*mistreats or bullies other classmates*” with items 26 and 21; item 37 “*whines and complains*” with items 13 “*yells or screams when angry*” and 35 “*is very fussy*”; and finally, item 7 “*has a strong temperament*” with items 13 and 19 “*things have to be done their way*”. After making the changes, the results produce adequate fit indices (Table 3):  $\chi^2=2989.890$ ,  $df=306$ ,  $p<.001$ ;  $AIC=2377.890$ ;  $NFI=.906$ ;  $CFI=.915$ ;  $GFI=.902$ ;  $AGFI=.877$ ;  $RMSR=.043$ ;  $RMSEA=.076$ ;  $\alpha=.967$ .

#### *Internalizing Problems subscale*

The internalizing problems subscale also did not show adequate fit to the *a priori* model ( $NFI=.789$ ;  $CFI=.796$ ;  $GFI=.813$ ;  $RMSEA=.123$ ). Using the criteria given above, no items were eliminated. However, relationships were established between the residuals of: item 12 “*avoids playing with other children*” with items 4 “*does not respond to affection from others*”, 17 “*has difficulty making friendships*” and 28 “*isolates himself/herself from other classmates*”; item 5 “*clings to the parent or*

teacher” with ítems 18 “*is fearful and easily frightened*” and 24 “*resists going to school*”; item 2 “*pretends to be sick when afraid*” and item 23 “*complains about discomfort or sickness*”; and finally, ítem 28 and 17. Results obtained after making the changes produce adequate fit indices (Table 3):  $\chi^2=823.403$ ,  $df=82$ ,  $p<.001$ ;  $AIC=659.403$ ;  $NFI=.919$ ;  $CFI=.927$ ;  $GFI=.934$ ;  $AGFI=.903$ ;  $RMSR=.048$ ;  $RMSEA=.077$ ;  $\alpha=.905$ .

Table 3. *Behavior Problems subscales, fit and reliability indices*

Subscale	$\chi^2$	$df$	AIC	NFI	CFI	GFI	AGFI	RMSR	RMSEA	$\alpha$
Externalizing Problems	2989.890*	306	2377.890	.906	.915	.902	.877	.043	.076	.967
Internalizing Problems	823.403*	82	659.403	.919	.927	.934	.903	.048	.077	.905

\* $p<.001$

## Discussion and Conclusions

Merrell (1995a) affirms that using structural equations models leads to stronger conclusions about the direction of causality between certain scales and subscales, or between the scales themselves. In this study we sought to understand these relationships in depth, as well as to confirm the validity and reliability of the *Preschool and Kindergarten Behavior Scale* by Merrell (2002); consequently, we used EQS in addition to SPSS.

After performing confirmatory factor analysis of the questionnaire, we can conclude that the results indicate adequate goodness of fit. The subscales comprises the questionnaire present adequate fit indices after performing the analyses, as well as a high Cronbach Alpha, quite close to 1. Social Independence has the lowest  $\alpha$  at .878. All the rest are greater than .900, reaching .967 in the case of the Externalizing Problems variable. The same occurs in different studies carried out by other researchers. For example, Carney and Merrell (2002) obtain a reliability index of .93 on the Social Skills scale, and an index of .94 on Behavior Problems.

The above data indicate that the scale is an adequate instrument for measuring these variables, offering high validity and reliability.

If the original model is taken into account, there are two items that were eliminated after completing the analyses. These items come from the Social Independence subscale: number 1 (*is independent when playing and working*), and 26 (*defends his or her rights*). Comparing the original model with the 1509 children in the Spanish sample, at first glance no variable fits adequately, but this changes when the confirmatory factor analyses are carried out. We stress the importance of adapting different instruments to the characteristics of the population in different countries, especially if the scales are translated to another language. If this is not done, there is no certainty that the data obtained correctly describe the target population.

One very positive aspect of the questionnaire, observed after obtaining the different fit indices, is that the two variables that make up the questionnaire can be measured independently and separately, that is, they exist in their own right; it is as if there were two questionnaires in one, making the information gathered much more complete (Merrell, 1995a). Merrell (1995a), after carrying out a study on the validity of the PKBS, obtained an important negative relationship between the Social Skills scale and the Internalizing Problems subscale. Children who obtain high scores in Internalizing Problems normally present deficits in social skills, this being confirmed in assessments made with the instrument. Furthermore, the correlation indices that Carney and Merrell (2002) obtain between the Social Skills scale and the Behavior Problems scale are significant.

Other studies that confirm the data obtained here are those by Jentsch and Merrell (1996) and Merrell (1995b). In both cases there is a high correlation between the different scales and high reliability and validity; the different items that make up the subscales measure the same construct and high internal consistency is confirmed. The analyses they perform are focused on external validity, by comparing the PKBS with instruments like the MESSY (*Mattson Evaluation of Social Skills with Youngsters* by Matson, Rotari & Helsel, 1983), the SSBS (*School Social Behavior Scales*, by Merrell, 1993) and the SSCSA (*Scale of Social Competence and School Adjustment* by Walker & McConnell, 1995).

One aspect that gives greater validity to the data obtained in this study is the fact that questionnaires were completed at 27 schools in the province of Granada, meaning that the assessors were different people and the school characteristics were quite varied. This fact gives greater weight to the results, since the data do not come from a specific sample but they span a random sampling, reinforcing objectivity and overcoming limitations that exist in other studies (Reyna & Brussino, 2009). Despite this positive aspect, it would be useful to observe what happens if this data were compared with data given by the children's parents, i.e., using different sources for the assessment instead of only teacher assessment (Jentzsch & Merrell, 1996; Merrell, 1995b).

We must be conscious of the importance of reliability and validity analysis of questionnaires that we use for studying human behavior. Each study that is carried out is one more step to ensure that we have a certain confidence in the data that we obtain from them; many more studies would be needed in order to confirm 100% the data obtained here. Only in this case can there be adequate prevention of behavior problems, this being our ultimate objective.

### **Acknowledgments**

The research presented in this article is sponsored by the R&D&I Project, *Estudio longitudinal de los efectos del programa aprender a convivir en el desarrollo de la competencia social y la prevención del comportamiento antisocial* [Longitudinal study of the effects of the Learning to Live Together program on developing social competence and preventing antisocial behavior] (EDU2009-11950), with financing from the Ministry of Science and Innovation and the Feder Funds (European Social Fund).



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## Appendix: Preschool and Kindergarten Behavior Scale – Spanish Version

<b>EOEI – ESCALA DE OBSERVACIÓN EN EDUCACIÓN INFANTIL (Padres y Profesores)</b>									
Sección 1: Información del niño	Sección 2: Información de quién responde								
<p>Nombre del niño: _____</p> <p>Edad: ____ años ____ meses ____ Sexo: M    F    <input type="checkbox"/>    <input type="checkbox"/></p> <p>Recibe el niño algún tipo de atención, ayuda o apoyo especial en esta u otra escuela: SI    NO    <input type="checkbox"/>    <input type="checkbox"/></p> <p>En caso afirmativo, ¿qué tipo de ayuda y en qué escuela? _____ _____</p> <p>Si el niño tiene alguna discapacidad o necesidad especial, por favor, indique cual: _____</p>	<p>Respondido por: _____</p> <p>Relación con el niño: _____</p> <p>Fecha: _____</p> <p>Indique los lugares o ambientes donde observó al niño: _____ _____ _____ _____ _____</p>								
Sección 3: Instrucciones									
<p>Por favor, a continuación responda a las preguntas que aparecen en las siguientes páginas. Sus respuestas deben basarse en las observaciones del comportamiento del niño <b>durante los últimos tres meses</b>. La valoración se hace de la siguiente forma:</p>									
<table style="margin: auto;"> <tr> <td>Nunca</td> <td>Casi Nunca</td> <td>Algunas Veces</td> <td>Con Frecuencia</td> </tr> <tr> <td>0</td> <td>1</td> <td>2</td> <td>3</td> </tr> </table>		Nunca	Casi Nunca	Algunas Veces	Con Frecuencia	0	1	2	3
Nunca	Casi Nunca	Algunas Veces	Con Frecuencia						
0	1	2	3						
<p><b>Nunca</b> Cuando el niño no muestra el comportamiento especificado o usted no lo ha observado. Tache el 0, que indica Nunca</p>									
<p><b>Casi Nunca</b> Cuando el niño casi nunca muestra el comportamiento especificado. Tache el 1, que indica Casi Nunca</p>									
<p><b>Algunas Veces</b> Cuando el niño muestra el comportamiento especificado con cierta frecuencia. Tache el 2, que indica Algunas Veces</p>									
<p><b>Con Frecuencia</b> Cuando el niño muestra el comportamiento especificado con mucha frecuencia. Tache el 3, que indica Con Frecuencia</p>									
<p>Por favor, rellene todas las preguntas y no haga cruces entre los números. Tache el número que corresponda.</p>									

Escala de Competencia Social					
	Nunca	Casi Nunca	Algunas Veces	Con Frecuencia	Puntuación
1. Es independiente cuando juega y trabaja	0	1	2	3	
2. Es cooperativo	0	1	2	3	
3. Ríe y se divierte con otros niños	0	1	2	3	
4. Juega con distintos niños	0	1	2	3	
5. Intenta comprender lo que otros hacen (Ej.: ¿Por qué lloran?)	0	1	2	3	
6. Es aceptado y cae bien a otros niños	0	1	2	3	
7. Sigue las instrucciones de los adultos	0	1	2	3	
8. Intenta hacer la tarea antes de pedir ayuda	0	1	2	3	
9. Hace amigos fácilmente	0	1	2	3	
10. Sabe controlarse	0	1	2	3	
11. Otros niños le invitan a jugar	0	1	2	3	
12. Utiliza bien su tiempo libre	0	1	2	3	
13. Acepta separarse de los padres sin problemas	0	1	2	3	
14. Participa en las conversaciones familiares o escolares	0	1	2	3	
15. Pide ayuda a un adulto cuando la necesita	0	1	2	3	
16. Cuando se leen historias se sienta y escucha	0	1	2	3	
17. Defiende los derechos de otros niños	0	1	2	3	
18. Se adapta bien a diferentes circunstancias	0	1	2	3	
19. Tiene habilidades y capacidades que sus compañeros admiran	0	1	2	3	
20. Anima a otros niños que se encuentran mal	0	1	2	3	
21. Invita a otros niños a jugar	0	1	2	3	
22. Recoge sus cosas cuando se le pide	0	1	2	3	
23. Respeta las reglas	0	1	2	3	
24. Busca el apoyo de un adulto cuando se encuentra mal	0	1	2	3	
25. Comparte sus juguetes y otras pertenencias	0	1	2	3	
26. Defiende sus derechos	0	1	2	3	
27. Se disculpa cuando molesta a otros sin querer	0	1	2	3	
28. Cuando es apropiado, cede y se compromete con las propuestas de otros	0	1	2	3	
29. Acepta las decisiones de los adultos	0	1	2	3	
30. Acepta los turnos para utilizar los juguetes u otros objetos	0	1	2	3	
31. Se muestra seguro en situaciones sociales	0	1	2	3	
32. Reacciona correctamente cuando se le corrige	0	1	2	3	
33. Es sensible a los problemas de los adultos (Ej.: ¿percibe la tristeza?)	0	1	2	3	
34. Muestra afecto por otros niños	0	1	2	3	
TOTALES					
					SC
					INT
					IND

Confirmatory factor analysis of the PKBS-2 subscales for assessing social skills and behavioral problems in preschool education.

Escala de Comportamiento Antisocial						
	Nunca	Casi Nunca	Algunas Veces	Con Frecuencia	Puntuació	
1. Actúa impulsivamente, sin pensar	0	1	2	3		
2. Finge estar enfermo cuando se siente mal o tiene miedo	0	1	2	3		
3. Se burla o se ríe de otros niños	0	1	2	3		
4. No responde al afecto de los otros	0	1	2	3		
5. Está demasiado apegado al padre o al educador	0	1	2	3		
6. Hace ruidos molestando a los demás	0	1	2	3		
7. Tiene un temperamento fuerte	0	1	2	3		
8. Reclama toda la atención	0	1	2	3		
9. Es ansioso o se muestra tenso	0	1	2	3		
10. No comparte	0	1	2	3		
11. Agrede físicamente (golpea, da patadas, empuja, etc.)	0	1	2	3		
12. Evita jugar con otros niños	0	1	2	3		
13. Grita o chillaba cuando se enfada	0	1	2	3		
14. Coge las cosas de otros niños sin permiso	0	1	2	3		
15. Le cuesta concentrarse o hacer las tareas	0	1	2	3		
16. Desobedece las normas	0	1	2	3		
17. Tiene dificultades para establecer amistades	0	1	2	3		
18. Es miedoso o asustadizo	0	1	2	3		
19. Se deben hacer las cosas a su manera	0	1	2	3		
20. Es muy activo – incapaz de quedarse quieto	0	1	2	3		
21. Es vengativo con los demás niños	0	1	2	3		
22. Desafía a los padres o al maestro	0	1	2	3		
23. Se queja de molestias o enfermedades	0	1	2	3		
24. Se resiste a ir al colegio	0	1	2	3		
25. Es inquieto y travieso	0	1	2	3		
26. Insulta a los compañeros	0	1	2	3		
27. Es difícil consolarlo cuando está mal	0	1	2	3		
28. Se aísla de los demás compañeros	0	1	2	3		
29. Maltrata o intimida a otros compañeros	0	1	2	3		
30. Parece infeliz o deprimido	0	1	2	3		
31. Tiene un comportamiento impredecible	0	1	2	3		
32. Tiene celos de otros niños	0	1	2	3		
33. Actúa como un niño de menos edad	0	1	2	3		
34. Rompe las cosas de los demás	0	1	2	3		
35. Es caprichoso	0	1	2	3		
36. Es muy sensible a las críticas	0	1	2	3		
37. Lloriquea y se queja	0	1	2	3		
38. Se aprovecha de los otros niños	0	1	2	3		
39. Interrumpe las actividades de clase	0	1	2	3		
40. Miente	0	1	2	3		
41. Se le provoca fácilmente – salta a la primera	0	1	2	3		
42. Molesta a los compañeros	0	1	2	3		
TOTALES						
					EP	IP

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