

## Psychometric Properties of the Social Skills Questionnaire: Portuguese Adaptation of the Student Form (Grades 7 to 12)

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The present study aims to analyze the psychometric properties of the student form (Grades 7 to 12) of the *Social Skills Questionnaire* authored by Gresham and Elliott (1990), on a sample of Portuguese adolescents. Participants included 573 students, both female and male, aged 14 to 19. Reliability was assessed through Cronbach's alpha and was .87 for the total scale, ranging from .58 to .72 for the subscales. A confirmatory factor analysis revealed that the main adjustment indices presented unexpected values. A principal components analysis indicated that several items of the cooperation subscale correlated with other factors. Adequate adjustment indices were found when cooperation was removed from the model. Semantic dualities due to cultural factors and difficulties assuming the cooperation dimension as an independent dimension might explain the results observed. The reorganization of the SSQ offers a reliable and valid instrument for research within the Portuguese population.

*Keywords:* assessment of social skills, Portuguese version for adolescents, confirmatory factor analysis.

El presente estudio ha tenido como objetivo el análisis de las propiedades psicométricas del *Cuestionario de Habilidades Sociales* (QHS) de Gresham y Elliott (1990), en la versión para estudiantes del 7º al 12º grado escolar. La muestra está compuesta por 573 estudiantes con edades comprendidas entre los 14 y los 19 años de ambos sexos. El análisis de consistencia interna con las dimensiones originales del cuestionario ha revelado un *alpha de Cronbach* total de .87 y *alphas* parciales entre .58 y .72. Un primer análisis factorial confirmatorio ha revelado índices inadecuados de ajuste comparativo con el modelo original. El análisis factorial exploratorio en componentes principales confirma una dispersión de los ítems de la dimensión cooperación. La eliminación de la dimensión cooperación mejora substancialmente los índices de ajuste en el análisis confirmatorio posterior. Entre las posibles explicaciones barajadas destacan: las dualidades semánticas, debidas a factores culturales y a dificultades en asumir como independiente la dimensión cooperación. La reorganización del QHS aporta un instrumento válido y fiable para la investigación en la población portuguesa.

*Palabras clave:* evaluación de las competencias sociales, versión portuguesa para adolescentes, análisis factorial confirmatorio.

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The importance of social competence has become increasingly evident in a variety of areas over the past 20 years. Greater attention on social competence has benefited from a variety of factors, including work done in the area of psychotherapy and clinical intervention that has identified and taught specific social behaviors, movements toward teaching assertiveness and affective education in educational psychology, movements toward deinstitutionalization and integration, as well as initiatives promoting regular and inclusive education (Walker, Ramsey, & Gresham, 2004). As a result of these developments, great investments have been made in promoting social competence in children, generally, and at-risk adolescents, in particular.

Social competencies constitute fundamental aspects for the personal and social development of children and adolescents. From early on, children are confronted with the necessity to interact and, more importantly, to be accepted in their interactions. According to Gresham and Elliott (1984), social competencies involve learning socially acceptable behaviors that allow children and adolescents to explore positive relationships with adults and with peer groups. Personal interaction is considered relevant to the acquisition of cognitive concepts, abilities and strategies that affect social development and learning (Coll & Sole, 1995). Satisfactory social interaction between adolescents and their peers and teachers requires an appropriate conjunction of social competencies, or in other words, of different classes of social behaviors, in order to adequately deal with the demands of interpersonal situations (Del Prette & Del Prette, 2003; 2005). Difficulties with social competencies, defined as acquisition or performance deficits, therefore interfere with the quality of these relationships (Del Prette & Del Prette, 2005; Gresham, 1992; 1995; Malecki & Elliott, 2002; McClelland, Morrison, & Holmes, 2000).

The analysis of social behaviors in adolescents has now begun to emphasize the effect that personal competencies have on the adolescent, their value as a social stimulus, the sequences of social behavior dynamics and the extent to which these personal skills meet social interaction needs (Phillips, 1985). Studies indicate that social competencies are an important attribute for adolescents, having been negatively correlated with various behavioral problems and emotional maladjustment, such as internalizing and externalizing behaviors, involvement with drugs and delinquency (Fletcher, Darling, Seinberg, & Dornbusch, 1995). Difficulty in acquiring social competencies is, in many cases, associated, though not causally, with poor academic performance, social adjustment problems, as well as psychopathology indices (Gresham & Evans, 1987).

Peterson and Leigh (1990) propose that social competence represents the sum of a variety of attributes. Social competence has been described as a desirable characteristic, one of extreme relevance in relation to education and the development of empathic attitudes toward teachers and peers, leading to effective and creative

problem solving skills (Fletcher et al., 1995). This attribute interacts with other aspects also highlighted by Peterson and Leigh (1990), namely the concepts of assertiveness and self control, attributes that are equally relevant to the social competence of adolescents who are able to react in an autonomous manner, meeting their own needs without undervaluing their relationships with others. The development of basic social competencies therefore translates into greater emotional stability for adolescents, who in turn feel accepted and valued. Ceconello and Koller (2000) put forth the identification of social competencies as a protective factor in the course of human development, which has stimulated efforts toward the learning of these abilities within distinct groups and contexts, as well as research on both clinical (in the context of psychological counseling) and non-clinical (through field studies in schools and the general community) populations.

The assessment of social competence requires the use of valid and reliable measurement tools, capable of adequately measuring these competencies, with the objective of gaining knowledge about the characteristics of the subjects studied or to evaluate the effect of psychological intervention programs (Bellack, 1983; Lange & Jakubowski, 1976).

Existing literature offers a significant number of valid and reliable methods for evaluating social competencies. Walker, Hops and Greenwood (1981) classify the methods of analysis of social competencies into two categories: diagnosis and intervention. Diagnostic methods provide information about the existence of difficulties in social competencies and allow for the identification of adolescents who require social competency training. These methods include behavior rating scales (Asher & Hymel, 1981; Matson, Esveltd-Dawson, & Kazdin, 1983), social skills scales such as the Social Skills Rating System (SSRS), sociometric techniques (Gomes da Silva, 2001), self-reports (Caballo, 2003; Del Prette & Del Prette, 2005), interviews (Caballo, 2003), inventories (Del Prette & Del Prette, 2002) and the observation of natural interactions between subjects and others within their own environment (Del Prette & Del Prette, 2005; Falcone, 2002; Löhr, 2003). Sources of information may include the subjects themselves as well as other significant individuals such as parents (Baraldi & Silveiras, 2003), teachers (Lemos & Meneses, 2002) and peers (Casares & Caballo, 2000; Del Prette & Del Prette, 2003).

Methods of intervention, in turn, include techniques for teaching social competencies, such as modeling, direct teaching of behavioral rules and responses, as well as strategies for mediation through peer and group contingencies (Gresham & Evans, 1987). The literature presents two methods of applying interventions for the development of social skills: multi- and unicomponent. Multicomponent interventions involve multiple objectives and various themes for discussion, including communication skills. This is the case for, among others,

couples' psychotherapy (Cordova & Jacobson, 1999), group treatments for depression (Hermolin, Rangé, & Porto, 2000), interventions for individuals with social phobia (Markway, Carmin, Pollard, & Flynn, 1999), panic and agoraphobia (Rangé, 2001), prevention of domestic violence (Haase, Käppler, & Schaefer, 2000), chronic pain management (Murta, 1999), stress management (Lipp, 1996), alcohol-related relapse prevention (Marlatt, 1993) and occupational development programs for unemployed youth (Sarriera, Town, & Berlin, 2000). Typically, these interventions include skills training in assertiveness, empathy and anger management, besides other specific areas that might require attention depending on each context and population. Unicomponent interventions differ from the multicomponent model in that they focus only on social skills.

Three main approaches to defining social competence can be found in existing literature (Gresham, 1986): a definition based on acceptance by others or popularity among peers, introduced by Moreno (1984), a behavioral definition and a definition based on social validity. The behavioral definition identifies specific competencies and behaviors (commonly referred to as social skills) that will supposedly lead to competent and effective social functioning. However, this approach does not guarantee that the social skills identified are in fact competent forms of social behavior. The social validation approach specifically emphasizes the need to consider socially validated behaviors. Combining these approaches, the definition adopted by Gresham (1983, 1986, 2002) views social skills as the observable behaviors that are part of the individual's performance in face of the demands posed by interpersonal situations and which are necessary for social competence. The relevant social outcomes are those that parents, teachers or other members of the community consider important, adaptive and functional.

It is important to emphasize the difference between social competence and social skills, given that social competence is a general term of an evaluative nature, based on the judgment of others in terms of an individual's social effectiveness or functionality in a given situation. On the other hand, social skills refer to communication skills and interpersonal relationships, the understanding of others' feelings (help) or organization and leadership in group situations (McFall, 1982). From this perspective, it can be said that the *Social Skills Questionnaire* (SSQ), evaluates social skills that influence the social competence of children and adolescents.

Note, however, that the *Social Skills Rating System* (SSRS) scales, in which the adapted questionnaire for this study is integrated, are not based on an exclusively behavioral design, instead incorporating a social validation perspective. This perspective is based on the evaluation system of Gresham and Elliott through the inclusion of scales for various contexts and informants (e.g., teachers,

parents) and an assessment of the importance attributed by the informant to each of the listed behaviors. Thus, the scales contain two types of records for each behavior: the frequency and the importance of the behavior from the perspective of the respondent. Importance is one of the components of social validity (Walker, Ramsey, & Gresham, 2004) that refers to the effects of specific behaviors on social competence. In the case of the SSRS, evaluation of importance indicates to what point specific behaviors will have expected effects on teacher-student relationships, on peer acceptance and on academic achievement (which are indicators of social competence in children and adolescents). This is highly relevant for identifying preferred target behaviors for psychological intervention (such as, for example, behaviors with low frequency and high importance). The SSRS scales, like the majority of social competence evaluation scales are, as such, extremely useful as one of the most frequent methods of quantitative assessment. They present, nonetheless, specific advantages and disadvantages. On one hand, they imply fewer costs given the collective administration method, they are more objective and provide immediate and valid information and are helpful in identifying maladaptive behaviors that will require future intervention. On the other hand, various limitations can be identified, which relate to the understanding of the items and the actual context in which adolescents place themselves, in other words, the behavior referred to in the items may be understood in terms of adolescents' experiences as well as in terms of their family context. The situational dimension suggests that social skills can be fully developed in the school context but not at the family level, or vice versa. In this sense, adolescents are sensitive to their own situations, in turn either reinforcing the development of these skills or not. Similarly, there are certain obstacles in the assessment of social skills, which relate to the subject who evaluates (parents, teachers, friends) and to the perception that this individual has of situations (Bolsoni-Silva, 2002). One must also consider that subjects can change their behaviors according to different contexts, which is why for the assessment of social competence and in particular with the SSRS, there is good reason to use different versions (parents, teachers and students) in order to complete the data that is obtained after using a single scale (Gresham & Elliott, 1990).

The following study focused on the SSQ integrated in the SSRS, having conducted psychometric property analyses in order to adapt the instrument to the Portuguese population.

The current study sought to test the factorial structure of the SSQ, an instrument supported by a structured conceptual model that provides a reading grid for the interpretation and comprehension of its results, from which practical implications may be derived. Accordingly, the first objective was to test to what extent the conceptual model underlying this instrument can be applied to the present sample. Furthermore, we intended to establish an

instrument that would be not only reliable and valid for research but also useful for practice in educational and clinical settings in the Portuguese population.

## Method

### *Participants*

The sample consisted of 573 adolescents in secondary school, attending grades 7 through 12 ( $M = 10.40$ ;  $SD = 1.23$ ), between the ages of 14 and 19 ( $M = 16.60$ ;  $SD = 1.23$ ). A total of 350 (61.10%) females and 223 (38.90%) males were included, 350 (61.10%) of which came from intact families, 101 (17.60%) from divorced families and 122 (21.30%) from institutions (orphanages and group homes). The age of fathers varied from 29 to 85 years ( $M = 46.31$ ;  $SD = 6.20$ ), while the age of mothers varied from 29 to 59 years ( $M = 43.30$ ;  $SD = 5.20$ ). The education level of both parental figures ranged from the first year of primary education to postgraduate studies: ( $M = 7.54$ ;  $SD = 3.69$ ) and ( $M = 7.61$ ;  $SD = 3.77$ ) for fathers and mothers, respectively. As for institutionalized adolescents, the total time spent in an institution ranged from 0 to 15 years ( $M = 5.69$ ;  $SD = 3.93$ ). For adolescents from divorced families, 76.80% lived with their mother, 10.50% with their father, 8.40% were in joint custody situations and 4.20% lived with other individuals (aunts, uncles, grandparents, etc.).

### *Instrument*

#### *Social Skills Rating System (SSRS)*

The SSQ (Gresham & Elliott, 1990) is part of the SSRS, an evaluation system consisting of various scales for the documentation of behavior. This system was developed by Gresham and Elliott (1990) in order to fulfill requests for the assessment of social competence and to serve as a basis for planning interventions in this area. The system includes several formats, comprising three age groups: pre-school (3-5 years of age), primary school (grades 1 to 6) and secondary school (grades 7 to 12), and three informants: parents, teachers and the students themselves<sup>1</sup>. The various versions of the SSRS have been widely used to assess social competencies in pre-school and primary/secondary school settings, playing an important role in working with children and adolescents with emotional and functional disturbances as well as identifying risks to psychosocial development (Abikooff, Vitiello, & Riddle, 2007; Bandeira, Rocha, & Freitas, 2006; Carpenter & Nangle, 2006; Ferreira, 2000; Mistry, Minkovitz, Strobino, & Borzekowski, 2007;

Rutherford, DuPaul, & Jitendra, 2008; Stanforn-Chapman, Justice, & Skibbe, 2007; Tse, Hamiwka, & Sherman, 2007; Vitiello, Abikoff, & Cuang, 2007; Ward, 2008).

This is a system that evaluates several specific facets grouped into three scales: social competence, behavior problems and academic competence, factors that have been considered in existing literature as relevant to the process of social adaptation and maladjustment. Items focus on positive behaviors and social skills, including: the use of efficient social skills, the absence of behavioral problems and the existence of age appropriate social cognition. On the other hand, there is the issue of assessing problematic behavior and academic competence. Today's notion of academic success has been expanded to include both academic as well as social competencies. Positive and responsible social behavior and interpersonal competence are central components of adaptation during and after school years. The complete system includes coordinated assessment by multiple informants, which can include teachers, parents and the students themselves (Gresham & Elliott, 1990).

The scales further distinguish specific types of social skills. As such, social skills include cooperation, assertiveness, responsibility, empathy and self-control; three of these areas are common to all formats for teachers, parents and students (specifically, cooperation, assertiveness and self-control). Behavioral problems include three subscales: internalized problems, externalized problems and hyperactivity.

The *Social Skills Questionnaire* version used in this study was the Student Form, comprising a self-report questionnaire for the 7<sup>th</sup> to 12<sup>th</sup> grade levels, consisting of 39 items to which each student responded based on two parameters: the frequency of the behavior and their perceived importance of the behavior. For the 39 items, the assessment method was based on the four dimensions defined by Gresham and Elliott (1990): cooperation, which includes behaviors such as helping others, sharing things and respecting rules and guidelines (items 6, 9, 13, 14, 17, 20, 31, 35, 36 and 37); assertiveness, which includes behaviors such as asking others for information or responding to the actions of others (items 1, 3, 4, 16, 23, 26, 30, 33 and 38); empathy, which includes behaviors that show respect for the feelings and points of view of others (items 2, 5, 8, 12, 21, 24, 25, 28, 29 and 39); and self control, which includes behaviors that are manifested in conflict situations, such as responding appropriately to provocation or in situations where there is no conflict but where it is necessary to compromise attitudes (items 7, 10, 11, 15, 18, 19, 22, 27, 32 and 34). Each item is rated on a 3-point frequency scale (0-never, 1-sometimes, 2-many

<sup>1</sup> The student (self-report) version exists for two levels only: grades 3 to 6 and grades 7 to 12.



times), based on respondents' perception of the frequency with which they exhibit each behavior. In addition, the questionnaire includes a rating of importance on a 3-point scale (0-not at all important, 1-important, 2-very important).

The SSQ (included in the SSRS) was standardized on a sample of approximately 4,000 students, with an equal number of boys and girls, from pre-school to Grade 12. According to the authors, the original SSRS, on the whole, possesses a clean factorial structure, and the factors demonstrate moderate internal consistency. The student version for the secondary-school level reveals Cronbach's alphas of .83 for the total scale, .69 for the cooperation dimension, .67 for the assertiveness dimension, .77 for the empathy dimension and .68 for the self-control dimension (Gresham & Elliott, 1990). Test-retest analyses were also conducted (with a four-week interval period) for the student version, presenting a .68 correlation coefficient for the total scale, ranging from .52 to .66 on the subscale values. Construct validity was analyzed through correlation studies of the SSQ using an internalized and externalized problems scale, namely the *Child Behavior Checklist-Youth Self-Report Form* (YSR) (Achenbach & Edelbrock, 1987), showing low to moderate correlations with internalizing and externalizing problems (between .07 and .43). A second validation criterion was supported by the correlation of the SSQ with a self-concept scale, namely the *Piers-Harris Children's Self-Concept Scale* (PHSCS - Piers, 1984). Results showed a moderate correlation between social competence and self-concept (.40), despite variation of this result in some areas, namely: behavior (.43), physical appearance (.30), anxiety (-.08), satisfaction and happiness (.45), as well as social and school status (.41). Therefore, these results suggest that the variables inherent to self-concept represent significant components in the effective functioning of social competencies (Gresham & Elliott, 1990).

In addition to research conducted by the original authors of the questionnaire, recent studies used the student version of the SSQ questionnaire with the aim of testing social competency development programs (Tynes-Jones, 2007), analyzing social support development strategies and assessing emotional behaviors and components (Epstein, Mooney, & Ryser, 2004; Lang, 2005; Kirchner, 2002). In addition, these studies analyzed social and language competencies, as well as academic performance in specific adolescent clinical situations (Fortin & Favre, 1999; Koning & Magill-Evans, 2001; Stevens, 1999; Wainer 1999).

Lemos and Meneses (2002) conducted adaptation studies with the SSQ in Portugal, assessing the social competence of adolescents with the teacher's version. The sample included 342 students from grades 3 to 6. Results reflected the studies carried out by Gresham and Elliott (1990), supporting a multidimensional concept of social competence, with distinguishable though interrelated subscales, offering a contribution to the differentiation of adolescents' adaptive and maladaptive social functioning.

## Procedures

The SSQ was translated by a bilingual (Portuguese-American English) translator in order to guarantee linguistic and cultural equivalence. The translated version was submitted to a committee of three specialists in the area of Developmental Psychology, who examined not only the linguistic but also the psychological equivalence of the translation (Hambleton, 2005). The revised version then underwent a process of oral discussion among adolescents with similar characteristics to those included in the sample, allowing for the questionnaire to be tested from the point of view of participants' comprehension of the items, instructions and response format. This analysis did not generate any changes to the existing content, having kept the semantic and cultural consistency inherent to each item in consideration. The original format was maintained, with only a few modifications made to formal aspects of the questionnaire.

Data were collected from 10 secondary schools in northern and central Portugal and the metropolitan area of Lisbon, as well as from 13 youth care institutions from northern and central Portugal, all randomly selected.

At the time of administration, the general objectives of the study were presented. Given the collective administration method used in both schools and institutions, standard instructions were provided on how to complete the questionnaires, emphasizing the confidentiality of all information provided as well as the voluntary nature of participation in the study. Although the expected time required to complete the questionnaires was 45 minutes, no time limits were set.

## Results

### *Internal Consistency Analysis*

An internal consistency analysis was performed using Cronbach's alpha, calculating for each of the four dimensions separately (cooperation, assertiveness, empathy and self-control), as well as for the total, in terms of frequency and importance. The values varied between .58 and .87, as illustrated in Table 1, which compares the results obtained in the present study and those obtained in the original authors' studies.

### *Confirmatory Factor Analysis*

The confirmatory factor analysis is used in order to test whether the conceptual model that organizes the instrument as proposed by the authors applies to the current sample. The value of confirmatory factor analysis lies precisely in the explicit testing of theoretical hypotheses, as opposed to the method of creating a theory as is the case with exploratory factor analysis (Gorsuch, 1983). The first phase of this process consisted of conducting confirmatory factor

Table 1  
Cronbach Alpha of Social Skills Questionnaire, comparative results from original study of Gresham and Elliott (1990)

Social Skills Questionnaire	N° Items	Sample N=573 Frequency	Sample N=573 Importance	Gresham, & Elliott (1990) N=171 Frequency
Cooperation	10	.58	.70	.69
Assertion	9	.55	.60	.67
Empathy	10	.72	.78	.77
Self control	10	.65	.66	.68
Total	39	.87	.81	.83

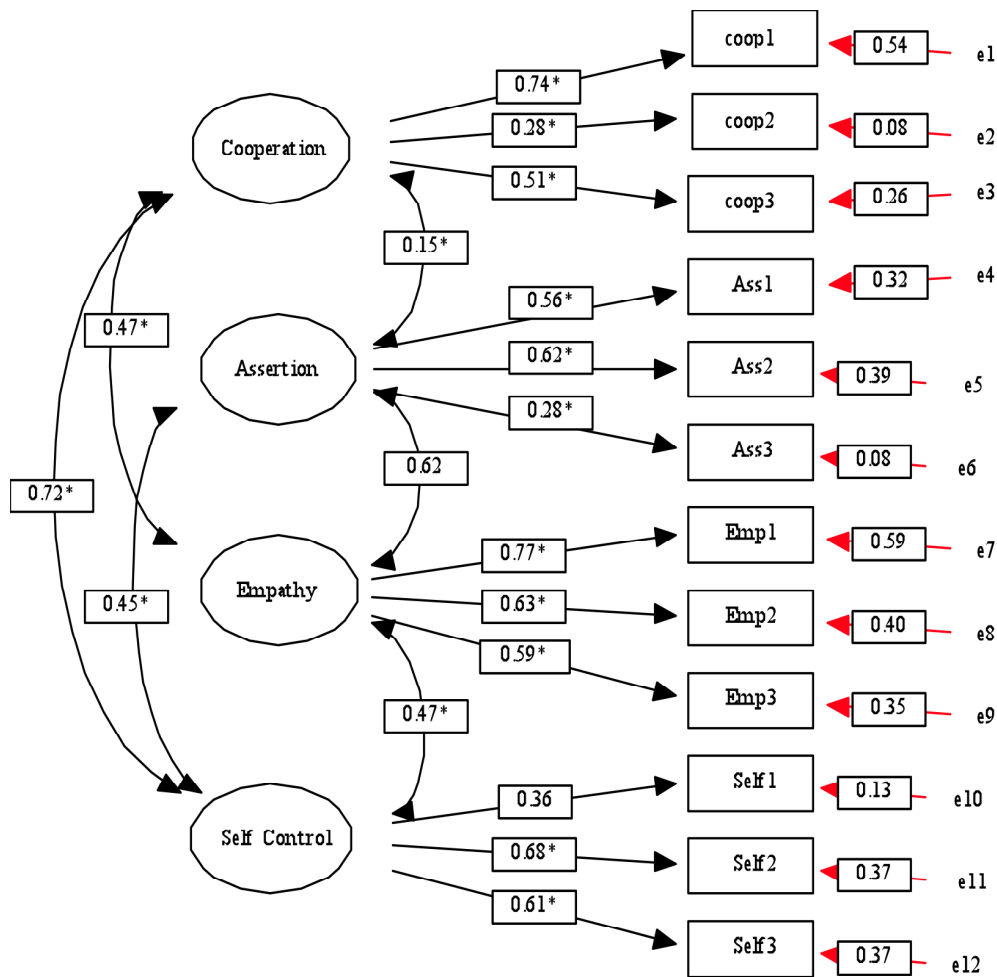


Figure 1. Original Model of Confirmatory Factorial Analyses - Frequency.

analyses for each of the questionnaire's dimensions in order to test the unidimensionality of the items. Differences were observed in the predictive effect of the items for each dimension when compared to the original authors' structure. To that extent, adjustment indices with values other than those that were expected were found for the cooperation

dimension (specifically, GFI, AGFI and CFI values above .90, and RMR and RMSEA indices below .080, Bollen, 1986; MacCallum, Widaman, Preacher, & Hong, 2001; Yuan, 2005). The remaining dimensions (empathy, assertiveness and self-control) represent models with adequate adjustment indices, assuring their unidimensionality.

Table 2  
Adjustment indices of theoretical model of SSQ

	Adjustment Indices
SRMR	.011
GFI	.940
AGFI	.900
CFI	.839
RMSEA	.083

SRMR= Standardized Root Mean Square Residual; GFI= Goodness of Fit Index; AGFI= Adjusted Goodness of Fit Index;

CFI= Comparative Fit Index; RMSEA=Root Mean Square of Error Approximation.

In a second phase, in order to test the general construct of social competence, a first-order confirmatory factor analysis was conducted with a model including the four intercorrelated dimensions suggested by the original authors. We chose to keep the dimension of cooperation in order to test its functioning in the general model. Note, however, that the SSQ includes 39 items, signifying that the number of parameters to estimate requires a significant number of sample participants (MacCallum et al. 2001). We thus employed the method of item parceling (Bandalos & Finney, 2001) (Figure 1; Table 2).

As indicated in Table 2, results show that the main adjustment fit indices present adequately moderate values, given the previously mentioned critical values. The results also reveal the difficulty in finding adequate adjustment values, as it was necessary to establish a correlation between errors in order to improve the model (Fig. 1). However, this issue has not been widely accepted in the scientific community because, on one hand, the number of parameters to estimate in the model increases and, on the other hand, the correlations between errors from different dimensions indicate that there may be a problem in the definition between dimensions, given that the errors from one dimension help to measure the variance of another dimension (MacCallum et al., 2001). In order to find an explanation for the behavior of the questionnaire in this sample, an exploratory factor analysis was conducted.

### Exploratory Factor Analysis

An exploratory factor analysis was conducted for the main components of the questionnaire. The basic requirements for the analysis were met, given that the values for the *Kaiser-Meyer-Olkin Test* (KMO) and the *Bartlett Test* were within the expected range, at .805 and 3622.014, respectively, with a significance of  $p = .001$ . A varimax rotation was performed on four components. Note

that this orthogonal rotation was used in order to reproduce the procedure developed by the authors, while at the same time allowing for a clearer interpretation of the organization of items. Results reveal that some items load on factors other than those originally proposed by the authors (items 37, 9, 6, 36, 14, 20, 31, 3 and 19, which mainly correspond to the cooperation dimension), as illustrated in Table 3.

Table 4 presents the content of the items in question, as well as the original dimensions that should have loaded on the new dimensions resulting from the factor analysis on the main components. These include items 3, 6, 9, 14, 19, 20, 31, 36 and 37, for which interpretation was clearly ambiguous, namely between the cooperation and self-control dimensions (“I listen to adults when they are talking with me”, item 6), between cooperation and assertiveness (“I use my free time in a good way”, item 31), and also between cooperation and empathy (“I ask my friends for help with my problems”, item 37). Consequently, a reorganized version of items within the dimensions was tested in order to understand whether a more appropriate model structure could be established.

The reorganization of items based on the results from the exploratory factor analysis suggests: empathy (items 28, 21, 5, 24, 8, 12, 29, 25, 39, 37 and 2), self-control (items 10, 6, 18, 32, 22, 34, 27, 11, 15, 36 and 14), assertiveness (items 20, 4, 33, 2, 26, 16, 30, 1, 38 and 31), and cooperation (items 3, 35, 13, 19, 17 and 7). The results show that the adjustment indices are very similar to those obtained in the original structure, with the exception of moderate improvements in the GFI and CFI indices, for which values did not meet the expected adjustment (see Table 5, restated version 1).

Next, given that there was no adequate model structure for this sample, a further confirmatory factor analysis was conducted, taking into account the items that loaded on unexpected factors according to the exploratory factor analysis. Thus, a regression coefficient was introduced in this model, which proved that some cooperation items are also explained by the dimensions of self-control and empathy. The results showed substantially higher adjustment indices compared to the original model, which, firstly, confirms the results of the exploratory factor analysis, considering that the cooperation items load on dimensions other than the original ones, and secondly, supports the consideration of removing the cooperation dimension from the model (see Table 5, restated version 2).

A final analysis was proposed in order to refine the model and provide a reliable and valid instrument for the advancement of other analyses on this sample as part of a larger study that does not require further discussion here. As such, the cooperation dimension was removed, since in the exploratory factor analysis items from this dimension loaded mainly on unexpected dimensions, illustrating their dispersed nature from the original structure. The results showed a significant improvement compared to the version originally proposed by the authors (see Table 5, restated

Table 3  
Exploratory factorial analyses of SSQ

	Social Skills			
	Empathy (a)	Self control (b)	Assertion (c)	Cooperation (d)
Item 28	.607			
Item 21	.544	.242		-.225
Item 5	.540			
Item 24	.520			
Item 8	.518			
Item 12	.501			
Item 29	.483		.225	
Item25	.429		.208	
Item39	.427		.286	
<b>Item 37</b>	<b>.401 (d)</b>	-.218		
Item 2	.378			
<b>Item 9</b>	<b>.311 (d)</b>	.270		
Item10		.537		
<b>Item 6</b>		<b>.525 (d)</b>		
Item 18	.216	.524		
Item 32		.522		
Item 22		.492		
Item 34		.440	.245	
Item 27		.405		.387
Item 11	.251	.403		
Item 15	.237	.383		.250
<b>Item 36</b>		<b>.374 (d)</b>		
<b>Item 14</b>		<b>.358 (d)</b>		.290
<b>Item 20</b>			<b>.570 (d)</b>	
Item 4			.546	
Item 33			.539	
Item 23			.492	
Item 26		.284	.462	-.202
Item 16			.425	
Item 30			.423	.306
Item 1			.386	
Item 38	.339		.365	
<b>Item 31</b>			<b>.358 (d)</b>	.341
<b>Item 3</b>				<b>.636 (e)</b>
Item 35	.262	.351		.464
Item 13		.333		.409
<b>Item 19</b>		.330		<b>.408 (b)</b>
Item 17	.228			.326
Item 7	---	-- (b)	--	--

(a)- Items corresponding to original dimension of empathy; (b)- Items corresponding to original dimension of self control; (c)- Items corresponding to original dimension of assertion; (d)- Items corresponding to original dimension of cooperation

version 3), revealing adjustment indices in accordance with expected values. Of note are GFI, AGFI and CFI values above .90, as well as SRMR and RMSEA index values below .080 (Bollen, 1986; MacCallum et al., 2001; Yuan, 2005).

To this extent, it was relevant in terms of this sample to remove the cooperation dimension from the model, as

it led to the improved functioning of the instrument. This issue could be explained by analyzing the items of this dimension from a semantic point of view, particularly given the ambiguity found in items (see Table 4) and considering inherent socio-cultural factors, since this scale was originally created for the North American population. It is



Table 4

Description of items load on factors other than expected in exploratory factor analyses

N° Item	Original Dimension	Item description	Reorganized Dimension
3	Assertion	"I ask adults for help when other children try to hit me or push me around"	Cooperation
6	Cooperation	"I listen to adults when they are talking with me"	Self control
9	Cooperation	"I ask for permission before touching other people's things"	Self control
14	Cooperation	"I keep my desk clean and neat"	Self control
19	Self control	"I ignore classmates who are clowning around in class"	Cooperation
20	Cooperation	"When I'm interested in someone I invite him (her) for a date"	Assertion
31	Cooperation	"I use my free time in a good way"	Assertion
36	Cooperation	"I use a nice tone of voice in classroom discussions"	Self control
37	Cooperation	"I ask my friends for help with my problems"	Empathy

Table 5

Adjustment indices of SSQ- Steps of instrument adaptation

	SRMR	GFI	AGFI	CFI	RMSEA
Original Version	.011	.940	.900	.839	.083
Reorganization Version 1	.011	.944	.899	.924	.071
Reorganization Version 2	.008	.954	.922	.911	.067
Reorganization Version 3	.007	.970	.943	.927	.064

SRMR= Standardized Root Mean Square Residual; GFI= Goodness of Fit Index; AGFI= Adjusted Goodness of Fit Index; CFI= Comparative Fit Index; RMSEA= Root Mean Square of Error Approximation.

**Original Version-** Original model from the authors; **Reorganization- Version 1-** Model with items organized in new dimensions according to exploratory factor analyses results; **Reorganization -Version 2-** Model with a cooperation regression coefficient that load in latent variables of self control and empathy; **Reorganization- Version 3-** Model where cooperation dimension was deleted.

worth noting that, as previously mentioned, prior to these analyses being performed, we sought to understand how the instrument would behave in this sample of Portuguese adolescents, leading to the decision to conduct the study in an exploratory manner. This procedure was based not only on the authors' original structure but also on the significance of the model based on the analysis of the adjustment indices chosen in this study (CFI, AGFI, GFI, SRMR and RMSEA). This was in addition to the initial model comparison and the testing of release parameters using the *Wald Test*, the *Lagrange Test*, which allowed for the release of constraints and an increase in parameters by way of a significance of  $p = .05$ , and also the *Chi-Squared Test*, as well as its associated significance, an index considered in this study despite its allocation by sample size, the complexity and size of the model, and its distribution of variables.

### Discussion

Over the past decades, although great strides have been made in the field of social competencies and various measurement tools have been constructed, only a small

number have been produced or validated for the Portuguese cultural context. At the same time, we have seen an evolution in the literature in terms of concepts of social competence and skills, concepts that tend to be increasingly understood in relation to the subjects' developmental, ecological and social contexts (Schlundt & McFall, 1985). As such, it makes entire sense to think about the assessment of social competence from a broad perspective, given that the use of restrictive measures may limit the possibility of responding to certain culturally inadequate elements. Similarly, a fact that has also been overlooked is that many social competencies and behaviors are associated to specific contexts. Therefore, it is essential to note that adolescents do not react the same way to different contexts and the perception of adolescents, parents and even teachers also varies within the same situation, implying a complex assessment procedure (Achenbach, McConaughy, & Howell, 1987, Gresham & Elliott, 1987, Kazdin, 1988, Renwick, 1984).

The results found in this study allowed for the testing of the theoretical model underlying the SSQ for this sample,

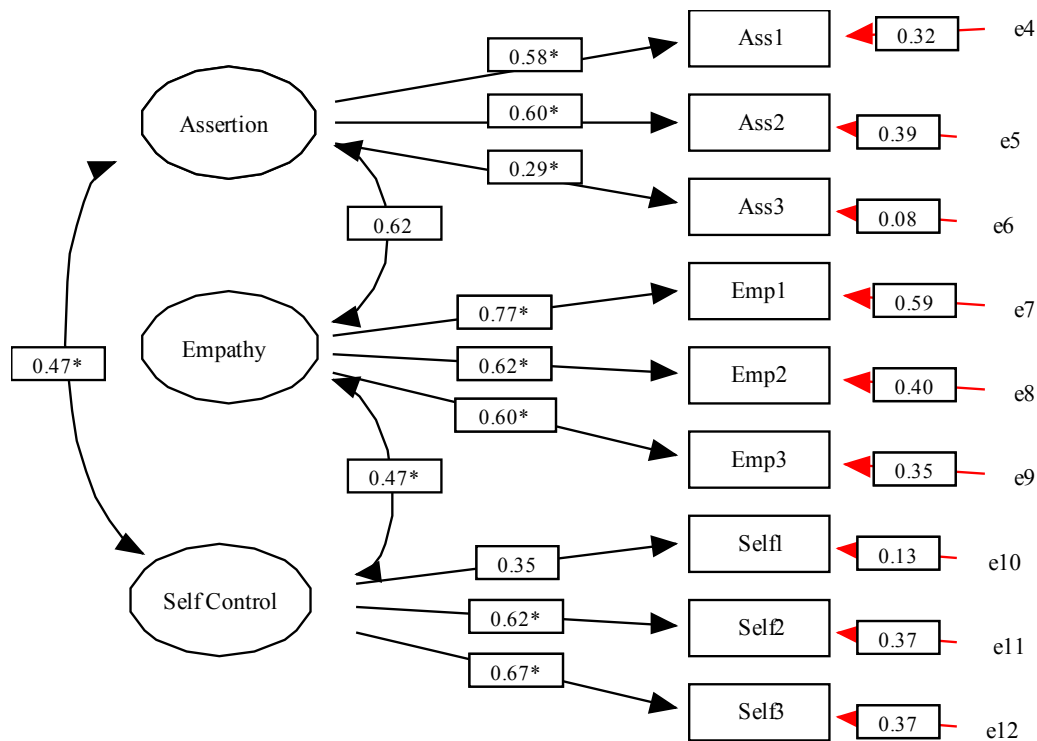


Figure 2. Model of Confirmatory Factorial Analyses of SSQ without cooperation dimension.

indicating a concept of social competence similar to the one originally proposed by the authors, with the exception of the cooperation dimension. The confirmatory factor analysis conducted on the original model revealed inadequate adjustment indices, which could only be improved through error correlations. This solution could, however, become controversial since it increases the number of parameters to estimate and implies a greater discrepancy between the recommended theoretical model and what is actually being measured, given that the dimensions are not entirely independent (MacCallum et al., 2001).

On the other hand, the exploratory factor analysis on four main components allowed us to observe the dispersion of the majority of the cooperation dimension items by the remaining dimensions, leading us to consider the possibility that this dimension does not adjust itself to the model in this sample. Thus, in the first stage of the analysis, the reorganization of the model based on the results of the exploratory factor analysis revealed no improvements in the adjustment indices of the confirmatory factor analysis. In the second stage, one that strengthened already existing findings, the confirmatory factor analysis revealed that a number of cooperation items loaded on unexpected dimensions such as empathy and self-control (given its distribution in the exploratory analysis), presenting moderate adjustment indices. This, in a way, allows

us to consider the possibility of differences existing in the distribution of items in view of the original authors' dimensions. In the final stage, with the elimination of the cooperation dimension, it was observed that the values of the adjustment indices were in accordance with what would be theoretically expected.

Although this study provides evidence that would allow for progress in the process of testing and adapting the instrument, it is necessary to conduct parallel studies with independent samples that would allow for a cross-validation to be conducted and the replicability of these results to be tested. Note that the transcultural adaptation of the scale as originally conceived by the authors was not achieved in its entirety in this study. However, it is relevant to point out that the theoretical construct underlying the questionnaire was maintained. Therefore, the results support the idea that social competence in this Portuguese sample includes several attributes, namely assertiveness, empathy and self-control. The cooperation dimension appeared to be controversial, namely with item 6 – “I listen to adults when they are talking with me”, item 9 – “I ask for permission before touching other people’s things”, item 14 – “I keep my desk clean and neat” and item 36 – “I use a nice tone of voice in classroom discussions”. These items were originally considered as part of the cooperation dimension, but could clearly be included in the self-control

dimension. Besides the self-control dimension, some dispersion of items among the empathy and assertiveness dimensions was also observed.

Despite having done translation work in order to maintain the linguistic and cultural equivalence of items, future studies might allow for the improvement of some items, namely those related to cooperation. However, we must consider the possibility that the concept of cooperation, as it is presented in this instrument, may not be universal in nature, but instead determined by the socio-cultural conditions of the country of origin (Hambleton, 2005). This issue does not suggest that the questionnaire does not meet the objectives outlined by the authors for assessing social competencies. The construct is in fact the same one, it is simply not assessed in exactly the same manner. The removal of the cooperation dimension does not compromise the ability to validate the instrument, since social competencies are adequately and significantly represented by the empathy, assertiveness and selfcontrol dimensions. Further, the exclusion of the cooperation dimension allowed us to find an adapted model (from the point of view of item functionality and not only in terms of model adjustment) for the present sample of Portuguese adolescents. From this perspective, we may consider that the student version of the SSQ allows for the identification and comprehension of social competencies within the school context. In summary, despite the identification of inherent difficulties in adapting instruments, specifically due to cultural or linguistic discrepancies, we believe this analysis may provide a construct-equivalent tool that is valid and reliable for research and intervention, allowing for its use in future studies on the Portuguese-speaking population.

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