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Niina Junttila, Marja Vauras, Päivi M. Niemi & Eero Laakkonen

## **Multisource assessed social competence as a predictor for children's and adolescents' later loneliness, social anxiety, and social phobia**

### **Abstract**

*The aim is to present the psychometric properties of a multisource scale measuring children's and adolescents' self-, peer-, and teacher-evaluated social competence and, further, to study whether these evaluations predict later psychosocial ill-being consisting of loneliness, social anxiety, and social phobia. Sample 1 consisted of 318 Finnish elementary school children, who in the beginning were fourth graders (approximately 10 years old). Sample 2 consisted of 191 adolescents who in the beginning were seventh graders (approximately 13 years old) in lower secondary school. The self, peer and teacher ratings of the participants' social competence were collected in the fourth and seventh grades. Further, their loneliness, social anxiety, and social phobia were evaluated a year later, i.e., in the fifth and eighth grades. The factor structure of the scales was validated with separate CFA models and the consistency between the raters evaluated with Pearson correlations. Based on the results of structural equation modeling, children's negative self-images of their pro- and antisocial behaviour during fourth grade predicted higher levels of loneliness and social anxiety during fifth grade. On the other hand, for lower secondary school adolescents, the peer and teacher ratings of adolescents' social competence during the seventh grade predicted loneliness, social anxiety, and social phobia during eighth grade. The importance of recognizing the early signs of possible problems in children's and adolescents' socio-emotional well-being, before the onset of more severe psychosocial problems, is discussed.*

### **Keywords**

*Social competence; Loneliness; Social anxiety; Social phobia*

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# **Mehrperspektivisch erfasste soziale Kompetenz als Prädiktor für spätere Einsamkeit, soziale Ängstlichkeit und soziale Phobie von Kindern und Jugendlichen**

## **Zusammenfassung**

*Ziel dieses Beitrags ist die Darstellung von psychometrischen Eigenschaften einer Skala zur mehrperspektivischen Messung sozialer Kompetenz von Kindern und Jugendlichen, die von deren Lehrern und Peers sowie von den Teilnehmern selbst beurteilt wurde. Ein weiteres Ziel des Beitrags ist die Untersuchung, ob diese Beurteilungen späteres psychosoziales Unwohlsein (Einsamkeit, soziale Ängstlichkeit und soziale Phobie) vorhersagen können. Stichprobe 1 bestand aus 318 finnischen Viertklässlern (etwa 10 Jahre alt) und Stichprobe 2 aus 191 finnischen Schülern der Sekundarstufe I (Jahrgangsstufe 7, etwa 13 Jahre alt). Die Selbst-, Peer- und Lehrerbeurteilungen der sozialen Kompetenz der Teilnehmer wurden in der vierten bzw. siebten Jahrgangsstufe erhoben. Einsamkeit, soziale Ängstlichkeit und soziale Phobie wurden ein Jahr später erhoben (in der fünften bzw. achten Jahrgangsstufe). Die Faktorstruktur der Skalen wurde mit separaten Modellen der konfirmatorischen Faktorenanalyse validiert und Pearson-Korrelationen zur Beurteilung der Konsistenz zwischen den Einschätzungen der „Rater“ berechnet. Ergebnisse von Strukturgleichungsmodellierungen zeigen, dass die negativen Selbstwahrnehmungen der Grundschüler hinsichtlich ihres pro- und antisozialen Verhaltens in Jahrgangsstufe 4 einen höheren Grad an Einsamkeit und sozialer Ängstlichkeit in Jahrgangsstufe 5 vorhersagen. Demgegenüber zeigen die Analysen für die Sekundarschüler, dass die Beurteilungen durch Peers und Lehrer in Jahrgangsstufe 7 Einsamkeit, soziale Ängstlichkeit und soziale Phobien in Jahrgangsstufe 8 vorhersagen. Abschließend wird die Bedeutung des Erkennens von Anzeichen möglicher Probleme hinsichtlich des sozio-emotionalen Wohlbefindens von Kindern und Jugendlichen zu einem frühen Zeitpunkt – noch bevor schwerwiegendere psychosoziale Probleme einsetzen – diskutiert.*

## **Schlagworte**

*Soziale Kompetenz; Einsamkeit; Soziale Ängstlichkeit; Soziale Phobie*

## **1. Introduction**

Social competence in children and adolescents has been closely related to healthy socio-emotional functioning in later life. A longitudinal study by Burt, Obradovic, Long, and Masten (2008) showed strong evidence for pervasive relations between social competence and psychosocial problems such as loneliness, social anxiety, social phobia, and depression through school years to adulthood. Increasing worry about children's and adolescents' well-being in Western societies evokes a need for

reliable, potent, and economical screening measures to assess students' social competence in schools at different developmental stages. For this purpose, this study examines the potential of the Multisource Assessment of Social Competence Scale (MASCS) (Junttila, Voeten, Kaukiainen, & Vauras, 2006) for predicting the emergence and development of several age-relevant psychosocial problems – in this case, loneliness, social anxiety, and social phobia – in two cohorts, elementary and lower secondary school students. First, we test the validity of the measure as well as the consistency between the raters of both cohorts. Second, we examine the predictive potential of the test at these two age levels, and more specifically, whether there are differences in the predictive potential of ratings of different significant social agents at school age (self, peers, and teachers).

### **1.1 Social competence and its potential to predict psychosocial problems**

Social competence is usually described in global terms, such as the ability to effectively attain and maintain positive social outcomes by organizing one's own personal and environmental resources (see Anderson-Butcher, Iachini, & Amorose, 2008; Boyom & Parke, 1995; Dirks, Treat, & Weersing 2007; Ladd, 1999; Semrud-Clikeman, 2007). Rubin and Rose-Krasnor (1992, p. 285) defined social competence as “the ability to achieve personal goals in social interaction while simultaneously maintaining positive relationships with others over time and across situations”. Here we focus on two main aspects of social competence: prosocial and antisocial behavior (Junttila et al., 2006; Junttila, 2012). Both of these include skills, attitudes, and affective states, in a way that in order to be socially competent, a child has to display high performance on the dimension of prosocial behavior and low performance on the dimension of antisocial behavior.

Among these, prosocial behavior includes socially desirable actions, such as helping, sharing, and comforting. Manifestations of prosocial behavior, such as cooperation and participation in group activities, lead to acceptance by peers (see Coie, Dodge, & Kupersmith, 1990) and promote learning processes (see Rubin, Bukowski, & Parker, 1998). Children displaying antisocial behavior risk becoming marginalized and have higher rates of school dropout and conduct disorders (see Farmer, 2000). However, the perceptions and interpretations of one's social competence may be divergent due to different expectations of the evaluators (Erdley, Nangle, Burns, Holleb, & Kaye, 2010) or to relational, interactional, or contextual factors (see Junttila, 2010). For example, while Junttila (2012) compared the multisource assessments between low and high achievers, or between girls and boys, the largest discrepancies occurred between the ratings by teachers and by the other informants, in particular self and parents. This illustrates the need to apply multisource assessment in order to construct a more complete and accurate view of the person's competence (see also Epkins, 1996; Kraemer, Measelle, Ablow, Essex, Boyce, & Kupfer, 2003; Renk & Phares, 2004; Semrud-Clikeman, 2007).

The value of social competence is convincingly shown by research; its development and consequences contribute to enhanced academic achievement and socio-emotional well-being, as well as decreased social exclusion, delinquency, and other psychosocial problems (Burt, Obradovic, Long, & Masten, 2008; Kavale & Forness, 1996; Ladd & Troop-Gordon, 2003; Nowicki, 2003; Semrud-Clikeman, 2007). Burt et al. (2008) argued that there are several reasons why social competence and psychosocial problems interrelate over time, but the interrelations are complex and not causal in a straightforward way. Social competence is more visible in behavior than in internalized problems, such as loneliness, anxiety, phobia, depression, or somatization. Therefore, there are three good reasons to consider social competence as a predictive measure: it is identifiable from early on; it includes skills and behaviors accessible to other social agents in a child's closest social contexts; and it does not yet indicate severe psychosocial or pathological problems.

## **1.2 Loneliness, social anxiety, and social phobia as developmental risks**

Loneliness, social anxiety, and social phobia were chosen in this study as indicators of psychosocial developmental risks in adulthood. All these have been shown to become more noticeable with age and school years. While the clinical manifestation of social phobia in childhood is still limited, expressions of loneliness (Heinrich & Gullone, 2006) and anxious solitude (Gazelle & Ladd, 2003) as well as social anxiety (La Greca, 1998) have become more prevalent and identifiable. Like anxiety, the level of loneliness and its continuity during adolescence seem to be increasing (Eronen & Nurmi, 2001; Renshaw & Brown, 1993).

Around a quarter of children and adolescents have daily feelings of loneliness (Larson, 1999; Koenig & Abrams, 1999). For 10–20 % of them, loneliness is a persistent and painful state of mind (Heinrich & Gullone, 2006). In a review of the mean scores, the prevalence of loneliness appears to peak during adolescence, drops between young adulthood and middle age, and then perhaps rises slightly during old age (Perlman & Landolt, 1999).

A significant percentage of adolescents, 27–47 %, report at least one social fear, the most common being fear of doing something in front of others, e.g., speaking in public (Essau, Conradt, & Peterman, 1999; Ranta, Kaltiala-Heino, Rantanen, Tuomisto, & Marttunen, 2007; Ranta, Kaltiala-Heino, Rantanen, & Marttunen, 2009). As can be expected, the prevalence rates for the clinical and severe form of social phobia are much lower. Before the age of 12 social phobia prevalence is below 1 %. By the ages 12–17 years it is already at 2–3 % (Essau et al., 1999; Wittchen, Stein, & Kessler, 1999).

*Loneliness* is the distressing subjective experience of lacking desired social relationships, i.e., a discrepancy between one's actual and desired relationships (Peplau & Perlman, 1982; Weiss, 1973). Since feelings of loneliness result from the subjective perception of unsatisfying social relationships or unsatisfied social needs, these

feelings may be relatively independent of actual solitude or social contacts (e.g., Chipuer, 2001). While being alone is a physical state, being lonely is an emotional state of mind. Since the writings of Weiss in 1973, two basic dimensions have been used to describe the nature of loneliness: the loneliness of social isolation and the loneliness of emotional isolation. Later research has consistently supported the existence of these two dimensions of loneliness (Hoza, Bukowski, & Beery, 2000; Qualter & Munn, 2002). Hence, in our studies, we have used the terms “social loneliness” and “emotional loneliness” to describe these two dimensions (Junttila, 2012; Junttila, Laakkonen, Niemi, & Ranta, 2010; Junttila & Vauras, 2009). Our longitudinal studies of elementary and lower secondary school students strongly indicated that both social and emotional loneliness tend to become more stable and pervasive over the school years (Junttila et al., 2010; Junttila & Vauras, 2009). Feelings of loneliness signal specific problems in a child’s or an adolescent’s social functioning (Stoeckli, 2010), and research has demonstrated a wide range of unfavorable outcomes, such as interpersonal failures, school dropout, depression, social anxiety, and social phobia (e.g., Asher & Paquette, 2003; McWhirter, Besett-Alesch, Horibata, & Gat, 2002; Neto & Barros, 2000; Heinrich & Gullone, 2006) as a consequence of chronic loneliness.

*Social anxiety* is an experience of fear, apprehension, or worry regarding social situations and being appraised by others. Exposure to alarming social situations is associated with concerns such as fear of embarrassment, being judged as stupid or crazy, or having a panic attack (Essau et al., 1999). Socially anxious adolescents anticipate negative social evaluations, tend to appraise their own behavior negatively (Voncken, Bögels, & Peeters, 2007), and may also show negative cognitions in stressful performance situations, as well as inhibition and withdrawal in social encounters (Spence, Donovan, & Brechman-Toussaint, 2000; Stein & Stein, 2008). However, whereas in many cases social anxiety can be rather common and transient, for some adolescents the symptoms may become more difficult during youth (Sumter, Bokhorst, & Westenberg, 2009) and increase the likelihood of severe social anxieties, such as social phobia (Rapee & Heimberg, 1997). A core symptom of the clinical form of social anxiety, *social phobia*, is a marked and persistent fear of social situations, leading to excessive anxiety and/or avoidance of such situations. During adolescence, social phobia may cause significant impairment in both engaging in educational activities and establishing close relations (Essau et al., 1999; Wittchen & Fehm, 2003). Studies have further suggested that in many cases social phobia precedes other clinical problems, such as depression (Essau et al., 1999; Ranta et al., 2009; Suveg, Hoffman, Zeman, & Thomassin, 2009).

## 2. Aim of the study

This study has three main aims:

- 1) to test the measurement validity of the social competence scale (MASCS) for elementary school children's and lower secondary school adolescents' self, peer, and teacher ratings,
- 2) to investigate the consistency between these multiple ratings on the dimensions of social competence (cooperating skills, empathy, impulsivity, disruptiveness), and,
- 3) to examine the potential of social competence in order to predict later psychosocial problems, namely, loneliness, social anxiety, and social phobia.

Since we used data from two studies, all analyses were run within age-ranges and school levels, i.e., separately within 9–11-year-old elementary school students and 12–14-year-old lower secondary school students.

The ratings of children's and adolescents' social competence by different social agents diverge importantly, as our previous studies have shown (Junttila, 2012). Yet, it is unclear whether these discrepancies remain similar in adolescence, when peer and other out-of-home relations become more important for students. As argued earlier, a clear connection exists between social competence and psychosocial well-being (e.g., Isley, O'Neil, Clatfelter, & Parke, 1999; Kavale & Forness, 1996; Ladd, 1999; Nowicki, 2003; Semrud-Clikeman, 2007; Webster-Stratton & Lindsay, 1999), but it is not yet established whether and how strongly social competence predicts later psychosocial well-being and whether there are age-relevant divergences in the predictive potential of different social agents, i.e., whether the ratings of one agent (self, peers, or teachers) serve as the best warning signal of later psychosocial problem at different age- and school-levels (cf. Kraemer et al., 2003).

## 3. Method

In order to study these questions, we used data from two research projects focusing on Finnish school students.<sup>1</sup> In Finland, the compulsory education system consists of nine grades, of which the first six years form the elementary school, and following three years the lower secondary school. The age of school entry (elementary school) is seven years, and most of the students finish their compulsory education nine years later, at age 15 or 16. The schools are obligated to realize a national curriculum appointed by the Finnish National Board of Education.

Pupils in Finnish public mainstream elementary and lower secondary schools represent the general population, as virtually all adolescents attend these schools,

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1 *Social in Learning*, led by Professor Marja Vauras, University of Turku; and *Socio-Emotional Learning and Well-being in Lower Secondary School*, led by Professor Päivi M. Niemi, University of Turku.

except for those with severe handicaps or intellectual disabilities. The participants in this study thus represented the general population of one Finnish city (approximately 175,000 inhabitants) and one municipality (approximately 20,000 inhabitants). The population of the city represents the Finnish urban population, and the population of the municipality represents the Finnish suburban and rural population by socio-economic composition (Statistic Finland, 2007). Written consent was obtained from the school principals, teachers, parents, children, and adolescents.

Sample 1 (*elementary school children's data*) consisted of 318 Finnish children, who in the beginning were fourth graders (approximately 10 years old) in mainstream education schools. Sample 2 (*lower secondary school adolescents' data*) consisted of 191 adolescents who at the beginning of the study had recently started their lower secondary school; i.e., they were seventh graders (approximately 13 years old). Both samples were followed over a period of one year. At the first measurement point (i.e., during the autumn of the fourth and seventh grades), ratings of the children's and adolescents' social competence were collected with self, peer, and teacher ratings. A year later (i.e., during the autumn of the fifth and eighth grades), the evaluations of their psychosocial ill-being were collected.

### 3.1 Social competence

Children's and adolescents' social competence was rated using the MASCS developed by Junttila and colleagues (2006). The scale was originally developed based on the School Social Behavior Scales (SSBS) developed by Merrell and Gimpel (1998).

The scale includes 15 items loading into four factors of social competence: Cooperating Skills (e.g., "Effectively participates to group activities") and Empathy (e.g., "Is sensitive to the feelings of others") to assess the prosocial dimension, and Impulsivity (e.g., "Has a short fuse") and Disruptiveness (e.g., "Argues and quarrels with peers") to assess the antisocial dimension of social competence. The rating scale is a four-point scale that designates frequency as follows: 1 = never, 2 = rarely, 3 = frequently, and 4 = very frequently.

The items were rated by (a) the children/adolescents themselves, (b) their peers, and (c) their teachers. With the exception of the difference in the personal pronoun (e.g., "I have a short fuse" vs. "Has a short fuse"), the items for the multiple evaluators are similar. The teacher who taught the most in the class was invited to evaluate the students. In practice, this was either the class teacher (in elementary school classes) or the homeroom teacher (in lower secondary schools). Peer ratings were collected from every student in the classroom and averaged in order to obtain one rating for each child from his or her peers in the classroom. The Cronbach's alphas for the data of children and adolescents are presented in Table 2, together with the CFA fit indexes.

### 3.2 Loneliness

To assess children's and adolescents' loneliness, a translated and modified version of the Peer Network and Dyadic Loneliness (PNDL) scale (Hoza, Bukowski, & Beery, 2000) was used. The PNDL scale measures loneliness associated with lack of involvement, both in a social network and in the absence of close dyadic friendships. These are basically the two main dimensions that Weiss (1973) discussed and that were later defined as social loneliness and emotional loneliness. Children and adolescents rated their own feelings of loneliness against paired statements such as, "Some students feel like they really fit in with others BUT Some students don't feel like they fit in with others". The participants were first asked to select which of these two types of students they were most like, and then to specify whether the chosen description fitted them "very well" or "quite well". Item scores varied between 1 (very low loneliness) and 4 (very high loneliness).

The scale has been validated for Finnish children (Junttila & Vauras, 2009) as well as for Finnish adolescents (Junttila, Laakkonen, Niemi, & Ranta, 2010). The children's version included eight items to measure Social Loneliness (e.g., "Some students feel lonely a lot because they wish others included them more in things BUT Some students don't feel lonely because they think others usually do include them in things") and eight items to measure Emotional Loneliness (e.g., "Some students hardly ever feel lonely because they have a close friend BUT Some students wish they had a close friend so they wouldn't feel so lonely"). The adolescents' version was similar, except that the number of the items was reduced to five for both factors. The reliability coefficients (Cronbach's alpha) for the scales are presented in Table 2, together with the CFA fit indexes.

### 3.3 Social anxiety

Children's and adolescents' social anxiety was evaluated using the Social Anxiety Scale developed by La Greca (1998). The adolescents' version (SAS-A) included three subscales measuring adolescents' Fear of Negative Evaluation (FNE), Social Avoidance and Distress in General (SADG), and Social Avoidance and Distress in New Situations (SADN). This scale has been validated for Finnish adolescents by Ranta, Junttila, Laakkonen, Uhmavaara, La Greca, and Niemi (2012). The scale consists of eight items measuring FNE (e.g., "I am afraid that others will not like me"), four items measuring SADG (e.g., "It is hard for me to ask others to do things with me"), and six items measuring SADN (e.g., "I only talk to people that I know really well"). The item scores varied among the following: 1 = not at all (true for me), 2 = hardly ever, 3 = sometimes, 4 = most of the time, and 5 = all the time.

The children's version of the Social Anxiety Scale (SASC) consists of two subscales: Fear of Negative Evaluation (FNE) and Social Avoidance and Distress in General (SADG). In the original version (La Greca, 1998), there are six items measuring FNE (e.g., "I am afraid that others will not like me") and four items measur-

ing SADG (e.g., “I only talk to kids that I know really well”). The item scores were similar to the adolescents’ version (between 1 and 5). The reliability coefficients for both versions/samples are presented in Table 2 along with the CFA fit indexes.

### 3.4 Social phobia

Since the prevalence of the clinical form of social anxiety, i.e., social phobia, rises remarkably during adolescence, we added a scale measuring social phobia for the sample of adolescents. The Social Phobia Inventory (SPIN) (Connor et al., 2000; Davidson, 2000) has 17 items and three subscales, namely Fear in Social Situations (e.g., “being criticized scares me a lot”), Avoidance of Performance or of Social Situations (e.g., “I avoid talking to people I don’t know”), and Physiological Discomfort in Social Situations (e.g., “I am bothered by blushing in front of people”). The item scores varied between 0 (indicating no symptoms of social phobia) and 4 (indicating strong symptoms of social phobia).

In a validity study with a sample of 12–17-year-old Finnish adolescents, there appeared to be just one factor, instead of the theoretically based three subscales (Ranta, 2008; also Junttila et al., 2010). Therefore, we also chose to use the SPIN as a one-factor scale measuring adolescents’ social phobia. The reliability coefficients are presented in Table 2 along with the CFA fit indexes.

### 3.5 Statistical analyses

First, in order to test the construct validity of each scale (MASCS, PNDL, SAS, SPIN) for both samples, a confirmatory factor analysis (CFA) was used. The CFA tests the adequacy of the specified relations, whereby indicators are linked to their underlying constructs (Kline, 1998; MacCallum & Austin, 2000). The CFA was applied to each scale of children’s and adolescents’ data separately. Second, the consistency between multiple ratings of children’s and adolescents’ social competence was examined by means of Pearson correlations. Third, in order to study the predictive value of the multiple ratings of children’s and adolescents’ social competence for later loneliness, social anxiety, and social phobia, the latent variable structural equation models were constructed.

The structural equation models were fitted to the covariance matrix using the Maximum Likelihood Robust method with Mplus 6.1 (Muthén & Muthén, 2010). Because significant intra-class correlations among the teacher ratings within classes were obtained, the complex method was adapted while modeling the data by teachers. The fit of the models was evaluated using chi-square, the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR). Chi-square evaluates the distance between the sample covariance matrix and the fitted covariance matrix. The CFI indicates how much better the model fits

than the independence model. The CFI index varies between 0 and 1, and the value should be close to .90 for the model to be suitable (Bentler, 1990). However, according to Little, Card, Preacher, and McConnell (2009), values between .85 and .90 are considered mediocre. The TLI, developed by Tucker and Lewis (1973), also indicates how much better the model fits than the independence model. The TLI index varies between 0 and 1, and the value should, according to Hu and Bentler (1999), be close to .95 for the model to be suitable. RMSEA is an index of discrepancy per degree of freedom (Steiger, 1990). According to Hu and Bentler (1999), a cutoff value close to .06 for RMSEA indicates a good fit. The SRMR index is the average of the standardized residuals between the observed and the predicted covariance matrix; a cutoff value close to .08 indicates a good fit (Hu & Bentler, 1999).

## **4. Results**

Descriptive statistics for elementary school children's (sample 1) and lower secondary school adolescents' (sample 2) self-, peer-, and teacher-rated social competence and their self-rated loneliness and social anxiety, as well as adolescents' social phobia, are presented in Table 1. Due to a considerable number of items (71 for children and 90 for adolescents), we present the descriptive statistics by factor scores calculated on the basis of the final models by CFAs. If required, the detailed statistics of each item's description are available from the first author. The estimates of skewness and kurtosis were within reasonable limits; i.e., the statistics were all well below 2.0 for skewness and 7.0 for kurtosis (Curran, West, & Finch, 1996).

### **4.1 Confirmatory factor analyses**

The construct validity of the scales was tested with CFA, using the original factor structures of the scales. The resultant fit indexes along with the reliability coefficients (Cronbach's alphas) are presented in Table 2. There were a few, mostly minor, modifications performed for the factor structures; i.e., some error correlations were allowed, two items were relocated into another factor, and one item was removed. The modifications conducted for the scales, separately for sample 1 (elementary school children) and sample 2 (lower secondary school adolescents), are reported in the following sections.

#### **4.1.1 Social competence**

The original four-factor structure, consisting of Cooperating Skills, Empathy, Impulsivity, and Disruptiveness, was tested on the data for children's as well as for adolescents' self-, peer-, and teacher-rated social competence. For the data for children, there was no need for modifications, considering the models of self and peer

Table 1: Descriptive statistics for the scales of the study variables

	Min	Max	Mean	Standard deviation	Skewness	Kurtosis
<b>Social competence / 4th graders</b>						
self ratings						
cooperating skills	5.00	20.00	14.86	2.77	-.27	.32
empathy	3.00	12.00	9.31	1.67	-.59	.96
impulsivity	3.00	12.00	5.21	2.11	1.17	1.51
disruptiveness	4.00	16.00	6.17	2.13	1.15	1.99
peer ratings						
cooperating skills	5.00	17.80	12.99	1.76	-.36	.22
empathy	3.00	10.48	8.00	.97	-.52	1.05
impulsivity	3.00	9.95	5.04	.94	1.49	4.27
disruptiveness	4.00	13.39	6.47	1.34	1.34	2.69
teacher ratings						
cooperating skills	5.00	20.00	13.67	3.52	.02	-.77
empathy	3.00	12.00	9.19	1.80	1.43	-.51
impulsivity	3.00	12.00	4.70	1.82	1.43	2.25
disruptiveness	4.00	16.00	6.63	2.59	.94	.55
<b>Social Competence / 7th graders</b>						
self ratings						
cooperating skills	5.00	20.00	13.79	3.11	-.30	.45
empathy	3.00	12.00	8.96	1.86	-.75	1.48
impulsivity	3.00	12.00	4.98	1.92	1.18	1.71
disruptiveness	4.00	16.00	6.28	2.16	1.06	2.17
peer ratings						
cooperating skills	5.00	20.00	12.50	2.07	-.66	.12
empathy	3.00	12.00	8.00	1.11	-.77	.20
impulsivity	3.00	12.00	4.88	1.05	1.58	4.07
disruptiveness	4.00	16.00	6.32	1.46	1.32	1.82
teacher ratings						
cooperating skills	5.00	20.00	13.12	3.42	-.54	-.26
empathy	3.00	12.00	9.22	1.93	-.56	.02
impulsivity	3.00	12.00	4.67	1.99	1.44	1.87
disruptiveness	3.00	16.00	6.22	2.82	1.27	.97
<b>Loneliness / 5th graders</b>						
social loneliness	8.00	32.00	13.31	4.80	1.13	1.32
emotional loneliness	11.00	26.00	16.35	2.90	1.08	1.23
<b>Loneliness / 8th graders</b>						
social loneliness	5.00	19.00	8.09	2.98	1.01	.69
emotional loneliness	5.00	20.00	8.27	3.50	1.07	.76
<b>Social Anxiety / 5th graders</b>						
fear of negative evaluation	6.00	28.00	13.91	4.81	.50	.11
social avoidance and distress in general	4.00	20.00	9.80	2.79	.07	.19
<b>Social Anxiety / 8th graders</b>						
fear of negative evaluation	8.00	38.00	18.80	5.23	.47	.77
social avoidance and distress in general	4.00	20.00	7.70	2.63	.94	1.86
social avoidance and distress in new situations	6.00	30.00	1.26	3.84	.21	1.20
<b>Social Phobia / 8th graders</b>						
Social Phobia	0.00	68.00	12.61	10.06	1.74	5.05

**Table 2:** The validity and reliability estimates for the scales being used

	$\chi^2$ ( <i>df</i> )	CFI / TLI	RMSEA / SRMR	Cronbach's Alpha <sup>a</sup>
<b>4-Factor model of social competence</b> (Cooperating skills; Empathy; Impulsivity; Disruptiveness)				
4th graders				
self ratings	135.85 (84)	.959 / .949	.044 / .047	.80 / .71 / .84 / .84
peer ratings	200.98 (84)	.956 / .945	.066 / .037	.96 / .91 / .95 / .96
teacher ratings	198.84 (83)	.933 / .915	.066 / .056	.91 / .85 / .83 / .89
7th graders				
self ratings	130.49 (84)	.955 / .944	.054 / .043	.86 / .79 / .85 / .83
peer ratings	254.97 (82)	.920 / .897	.105 / .051	.95 / .92 / .95 / .97
teacher ratings	182.13 (84)	.947 / .933	.078 / .046	.91 / .88 / .91 / .93
<b>Second-Order factor model of social competence</b> (Prosocial behavior; Antisocial behavior)				
4th graders				
self ratings	137.18 (85)	.959 / .950	.044 / .048	.89 / .89
peer ratings	202.58 (85)	.956 / .945	.066 / .037	.96 / .97
teacher ratings	199.47 (84)	.933 / .916	.066 / .056	.92 / .95
7th graders				
self ratings	131.32 (85)	.955 / .944	.053 / .043	.86 / .87
peer ratings	256.30 (83)	.920 / .898	.105 / .051	.97 / .96
teacher ratings	182.34 (85)	.947 / .935	.077 / .047	.92 / .92
<b>Loneliness</b> (Social loneliness; Emotional loneliness)				
5th graders	189.19 (102)	.957 / .950	.051 / .040	.90 / .91
8th graders	48.52 (34)	.974 / .965	.049 / .047	.86 / .90
<b>Social anxiety</b> (Fear of negative evaluation; Social avoidance and distress in general; Social avoidance and distress in new situations <sup>b</sup> )				
5th graders	74.81 (34)	.957 / .944	.061 / .038	.70 / .91
8th graders	244.32 (32)	.897 / .880	.078 / .079	.88 / .80 / .83
<b>Social phobia</b> (Social phobia)				
8th graders	247.65 (117)	.902 / .886	.079 / .058	.92

<sup>a</sup>The alpha values are presented according to the order of the consecutive factors which is presented in parentheses in the subheadline (after the evaluated phenomenon). <sup>b</sup>The third factor was only included in the adolescents' version.

ratings. For the model of teacher ratings, we allowed a correlation between the errors of item “Is easily irritated” (Impulsivity) and item “Argues and quarrels with peers” (Disruptiveness).

For the data on adolescents, there was no need for modifications, considering the models of self and teacher ratings; however, for the model of peers we needed to allow two error correlations. The first was between the Cooperating Skills items “Offers help to other students” and “Effectively participates to group activities”, and the second between the Disruptiveness items “Teases and makes fun of

other students” and “Bothers and annoys other students”. The conceptual similarity of these pairs is quite obvious and, thus, the correlation of the errors seemed to be justified.

After these original four-factor structures were confirmed, we also analysed the possibility of using a second-order factor structure consisting of Prosocial Behavior as a second-order factor for the first-order factors Cooperating Skills and Empathy, and Antisocial Behavior as a second-order factor for the first-order factors Impulsivity and Disruptiveness. These models seemed to be theoretically as well as statistically (based on the high correlations between the pro- and antisocial factors) justified. Moreover, the aimed latent variable structural equation models (modeling the predictive value of multisource evaluated social competence to psychosocial ill-being) with six (self-rated Pro- and Antisocial Behavior; peer-rated Pro- and Antisocial Behavior; and teacher-rated Pro- and Antisocial Behavior) instead of twelve (self-rated Cooperating Skills, Empathy, Impulsivity and Disruptiveness; peer-rated Cooperating Skills, Empathy, Impulsivity and Disruptiveness; and teacher-rated Cooperating Skills, Empathy, Impulsivity, and Disruptiveness) exogenous latent variables were more parsimonious to estimate. The resultant fit indexes and the reliability coefficients were very close to the corresponding estimates of the four-factor first-order models and are presented in Table 2.

#### **4.1.2 Loneliness**

The loneliness scale consisted of two factors: Social Loneliness and Emotional Loneliness. The children’s version had eight items for both factors; the adolescents’ version had five items for both factors. No modifications were needed to either the children’s (sample 1) or the adolescents’ (sample 2) CFA models. The fit indexes and the reliability coefficients are presented in Table 2.

#### **4.1.3 Social anxiety**

The original factor structure of the scale has two factors for children, i.e., Fear of Negative Evaluation (FNE) and Social Avoidance and Distress in General (SADG). For adolescents, there is one more factor, namely, Social Avoidance and Distress in New Situations (SADN). Testing the original two-factor structure with the data for children (sample 1) gave an inadequate fit. Based on the modification indexes, the item “I worry about doing something new in front of other kids” seemed to be an indicator of SADG rather than FNE. In the developmental article of this scale (La Greca, Kraslow Dandes, Wick, Shaw, & Stone, 1988) the loading of the item was .38 for the FNE and .30 for the SADG. In our data, the loadings were .08 for FNE and .56 for SADG. Therefore, the item was relocated as an indicator of SADG.

For the three-factor structure of adolescents’ data (sample 2), we needed to make two modifications. Based on the modification indexes, the SADG item “I’m

quiet when I'm with a group of people" also loaded to the factor of SADN. This was also somehow the case in the study by La Greca and Lopez (1998). In our data, the item had much stronger loading (.60) to the SADN than to the SADG (.09). Therefore, the item was relocated as an estimator of the SADN. Moreover, the FNE item "I feel that others make fun of me" was excluded, since it also loaded to FNE (.58), SADG (.35), and SADN (.25). In the Finnish version, the wording of this item may refer more to an existing experience of teasing than do the other items, which refer more to worries about being disliked or teased.

The fit indexes and the reliability coefficients of the final two-factor model of fifth grade children's (sample 1) and three-factor model of eighth grade adolescents' (sample 2) data are presented in Table 2.

#### **4.1.4 Social phobia**

Based on the previous Finnish research (Ranta, Kaltiala-Heino, Koivisto, et al., 2007; Ranta, Kaltiala-Heino, Rantanen, et al., 2007), we tested a one-factor structure for the data on the adolescents (sample 2). Two minor modifications were performed. We allowed a correlation between the errors of "I avoid speaking to anyone in authority" and "I am afraid of people in authority" and between "I avoid going to parties" and "Parties and social events scare me". The conceptual and verbal similarity of these two pairs is quite obvious and, thus, the correlation of the errors seemed to be justified. The fit indexes and reliability coefficient are presented in Table 2.

## **4.2 Correlations between social competence factors within and between raters**

The correlations between the four social competence factors (Cooperating Skills, Empathy, Impulsivity, and Disruptiveness) within and between raters, for both samples separately, are presented in Table 3.

Most of the correlations between self, peer, and teacher ratings were statistically significant, although many of them were quite low, indicating that the different sources of information tend to provide divergent ratings of children's (sample 1) as well as adolescents' (sample 2) social competence. For all four factors, the strongest correlations were found between the ratings of peers and teachers. While the correlations between self and teacher ratings varied between .16 (Empathy) and .24 (Disruptiveness) for children and between .14 (Empathy) and .28 (Impulsivity) for adolescents, the correlation between peer and teacher ratings varied between .47 (Empathy) and .66 (Disruptiveness) for children and between .51 (Cooperating Skills) and .72 (Disruptiveness) for adolescents. The correlations between the self and the peer ratings, for both samples, were closer to the correlations between

Table 3: Correlations (Pearson) between social competence factors within and between raters

	Self ratings (4th gr. / 7th gr.)				Peer ratings (4th gr. / 7th gr.)				Teacher ratings (4th gr. / 7th gr.)			
	CO	EM	IM	DI	CO	EM	IM	DI	CO	EM	IM	DI
Self ratings												
CO					.26* / .38*				.21* / .26*			
EM	.72* / .73*				.21* / .29*	.20* / .30*			.21* / .12	.16* / .14		
IM	-.36* / -.25*	-.35* / -.33*			-.14* / -.11	-.18* / -.20*	.28* / .34*		-.07 / -.05	-.17* / -.21*	.21* / .28*	
DI	-.39* / -.25*	-.41* / -.35*	.64* / .69*		-.14* / -.08	-.20* / -.16*	.20* / .22*	.32* / .19*	-.10 / -.04	-.20* / -.18*	.14* / .18*	.24* / .14*
Peer ratings												
CO									.54* / .51*			
EM					.91* / .89*				.50* / .43*	.47* / .52*		
IM					-.50* / -.47*	-.58* / -.57*			-.35* / -.35*	-.38* / -.60*	.52* / .71*	
DI					-.60* / -.55*	-.70* / -.65*	.80* / .86*		-.41* / -.34*	-.48* / -.56*	.46* / .74*	.66* / .72*
Teacher ratings												
CO									.67* / .68*			
EM									-.13* / -.32*	-.41* / -.64*		
IM									-.15* / -.26*	-.46* / -.60*	.79* / .81*	
DI												

Note. Within the correlation pairs in the cells, the first correlation is for 4th graders (elementary school children) and the second is for 7th graders (lower secondary school adolescents). CO = Cooperating skills; EM = Empathy; IM = Impulsivity; DI = Disruptiveness.  
 \* The (two-tailed) correlation is statistically significant.

self and teacher ratings than to the correlations between peer and teacher ratings. These correlations varied between .20 (Empathy) and .32 (Disruptiveness) for children and between .19 (Disruptiveness) and .38 (Cooperating Skills) for adolescents.

Moreover, most of the correlations were quite similar within the children's (sample 1) and adolescents' (sample 2) ratings. The largest difference between the correlations was between teacher and peer ratings of Impulsivity; the correlation in children's ratings was .52, whereas in adolescents' ratings it was .71.

### **4.3 Social competence as a predictor for later psychosocial ill-being**

The third and main aim of this study was to model whether children's and/or adolescents' later psychosocial ill-being (consisting of loneliness, social anxiety, and social phobia) can be predicted by self, peer, and/or teacher ratings of their social competence. For these already complex models, we used the second-order two-factor, instead of the first-order four-factor, CFA model (see Table 2). It follows that for the models of both samples, we had six exogenous latent variables, namely, Self-Rated Prosocial Behavior, Self-Rated Antisocial Behavior, Peer-Rated Prosocial Behavior, Peer-Rated Antisocial Behavior, Teacher-Rated Prosocial Behavior, and Teacher-Rated Antisocial Behavior.

Starting with the elementary school children's data (sample 1), we modeled the interrelations among the above-mentioned self-, peer-, and teacher-rated social competence during the autumn of their fourth grade and their later self-evaluated loneliness (consisting of Social Loneliness and Emotional Loneliness) and social anxiety (consisting of Social Avoidance and Distress in General, and Fear of Negative Evaluation) during the autumn of their fifth grade. The estimated model is presented in Figure 1.

The fit indexes estimated a good fit ( $\chi^2$  ( $df$ ) = 168.366 (69);  $n$  = 318; CFI = .951; TLI = .914; RMSEA = .068; SRMR = .055) for the model consisting of all of the above-mentioned ratings as predictors for later loneliness and social anxiety. For the sake of clarity, we present the statistically significant paths in a separate figure (Figure 2). Among these predictors were two latent variables predicting later loneliness and social anxiety. The first was the child's Self-Rated Prosocial Behavior, consisting of Cooperating Skills and Empathy. The other was Self-Rated Antisocial Behavior, consisting of Impulsivity and Disruptiveness. The path coefficient for Self-Rated Prosocial Behavior as a predictor for Loneliness was negative (-.151), indicating that children who evaluate themselves as having weak Cooperating Skills and low Empathy are at risk for later Social and Emotional Loneliness. The other path coefficients were positive, indicating that the more the child reports she or he behaves antisocially, the more likely she or he will be to report more loneliness and social anxiety a year later.

Figure 1: Self-, peer-, and teacher rated social competence predicting loneliness and social anxiety in elementary school ( $\chi^2 (df) = 168.366 (69)$ ;  $n = 318$ ; CFI = .951; TLI = .914; RMSEA = .068; SRMR = .055)

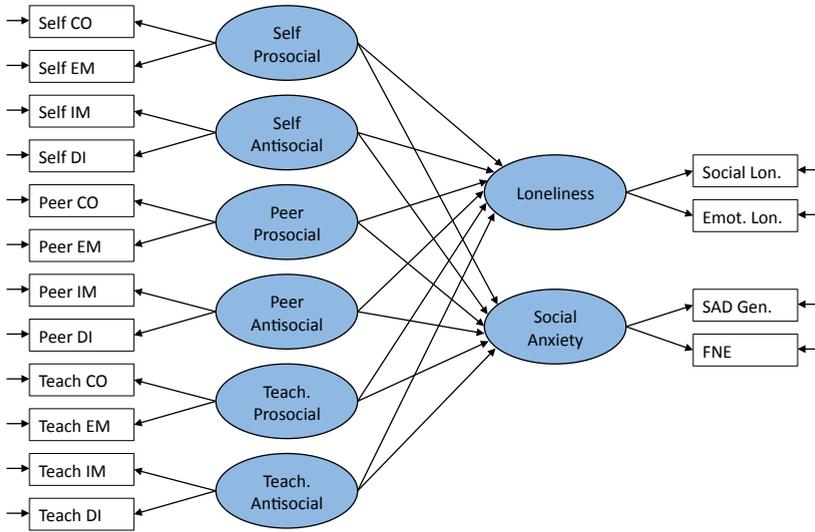
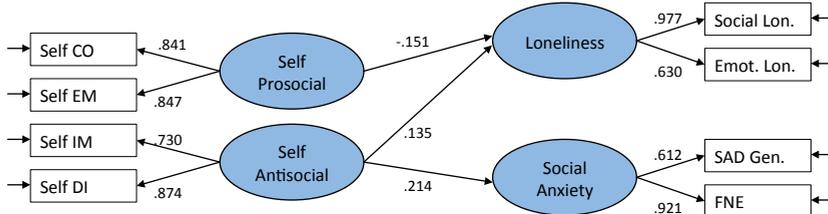


Figure 2: Self rated social competence predicting loneliness and social anxiety in elementary school (without non-significant paths)



Continuing with the lower secondary school adolescents' data (sample 2), we modeled the interrelations between their self-, peer-, and teacher-rated social competence during the autumn of their seventh grade and their later self-evaluated loneliness (consisting of Social Loneliness and Emotional Loneliness), social anxiety (consisting of Social Avoidance and Distress in General, Social Avoidance and Distress in New Situations, and Fear of Negative Evaluation), and social phobia during the autumn of their eighth grade. The estimated model is presented in Figure 3. The fit indexes estimated a good fit ( $\chi^2 (df) = 183.359 (93)$ ;  $n = 191$ ; CFI = .944; TLI = .907; RMSEA = .071; SRMR = .057) for the model. The statistically significant paths are presented in Figure 4.

Figure 3: Self-, peer-, and teacher rated social competence predicting loneliness, social anxiety and social phobia in lower secondary school ( $\chi^2$  (df) = 183.359 (93);  $n$  = 191; CFI = .944; TLI = .907; RMSEA = .071; SRMR = .057)

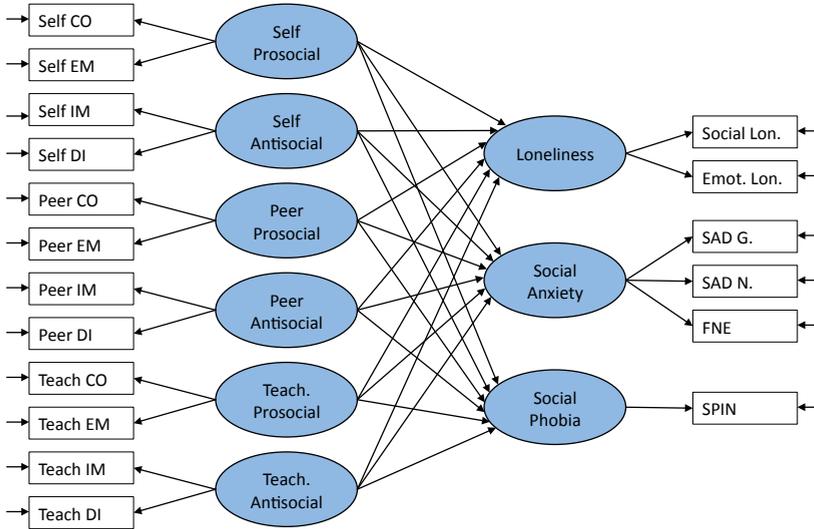
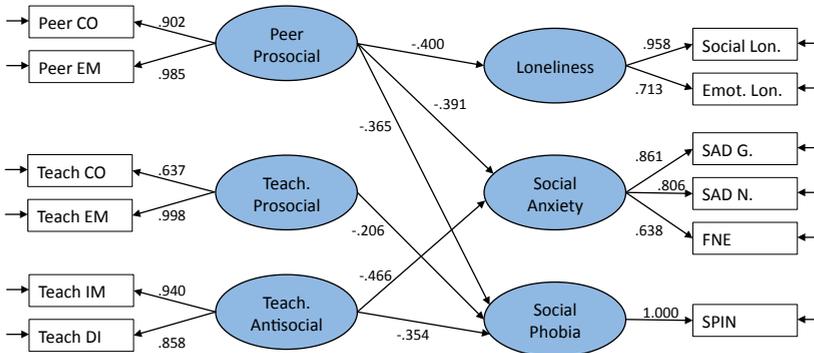


Figure 4: Peer-, and teacher rated social competence predicting loneliness, social anxiety and social phobia in lower secondary school (without non-significant paths)



First, the Peer-Rated Prosocial Behavior, consisting of Cooperating Skills and Empathy, proved to be a strong predictor for the later psychosocial ill-being of the secondary school adolescents (Figure 4). The peer ratings of one’s Prosocial Behavior predicted one’s later Loneliness, Social Anxiety, and Social Phobia. All of these path coefficients were negative, indicating that the less the adolescent is rated by peers to have Cooperating Skills and Empathy during the seventh grade, the

more feelings of loneliness, social anxiety, and social phobia she or he will probably have during the eighth grade.

Second, the Teacher-Rated Prosocial and Antisocial Behavior were found to predict adolescents' Social Anxiety and Social Phobia (Figure 4). The path coefficient between Teacher-Rated Prosocial Behavior and adolescents' Social Anxiety was negative, as was the case with peer ratings. That is, the less Prosocial Behavior the student is rated to have, the more Social Anxiety she or he will probably have later on. Unanticipated, the paths between Teacher-Rated Antisocial Behavior and adolescents' Social Anxiety and Social Phobia were also strongly negative. This indicates that the less Antisocial Behavior the student is noted by the teacher to have, the more likely she or he will be to suffer from Social Anxiety and Social Phobia a year later.

## 5. Discussion

The main aim of the study was to investigate whether self-, peer-, and teacher ratings of elementary school children's and lower secondary school adolescents' social competence, i.e., Cooperating Skills, Empathy, Impulsivity, and Disruptiveness, predict their later psychosocial ill-being, i.e., loneliness, social anxiety, and social phobia. Before constructing these longitudinal predictive models, we analysed the measurement validity of the scales as well as the consistency between the multiple ratings of students' social competence.

Most of the scales had good measurement validity (estimated with CFA) without major modifications for their expected factor structure. Since the MASCS was our main scale, we will here further discuss its factor structure. The scale had four factors, namely Cooperating Skills, Empathy, Impulsivity, and Disruptiveness. These have been previously validated with Finnish elementary school children's self-, peer-, teacher- and parent ratings (Junttila et al., 2006). Therefore, concerning the children's ratings, this study was partly a replication – (four-factor structure), partly a developing study (second-order factor structure). For the lower secondary school adolescents' neither of these structures has previously been validated. Firstly, the original four-factor structure showed at least acceptable fit for self-, peer-, and teacher ratings collected from fourth and seventh graders. The lowest fit was obtained for seventh graders' peer ratings, however since the CFI and SRMR estimates indicated a good fit, and TLI a mediocre fit, we chose to use the model comparative to the others.

Investigation of the correlations between the factors showed high values between the Cooperating Skills and the Empathy, as well as between the Impulsivity and the Disruptiveness. For peer ratings, the correlation between Cooperating Skills and Empathy was .91 in the sample of elementary school children and .89 in the sample of lower secondary school adolescents. Likewise, the correlation between peer rated Cooperating Skills and Empathy was .80 for children and .86 for

adolescents. Therefore, we continued by testing the second-order factor structure, which has already been presented in theory by Junttila et al. (2006). According to them, the cooperating skills and empathy forms a prosocial dimension of social competence, whereas impulsivity and disruptiveness forms the antisocial dimension of one's social competence. Despite the theoretical grounding, this model has not been previously validated. As a result of our study, this second-order factor structure was confirmed to fit the self-, peer-, and teacher ratings of both children's and adolescents' samples.

The second aim was to study the consistency between the ratings by different social agents. Like expected, most of the correlations between the three social agents within both samples were statistically significant. Many of them were, however, quite low, indicating that the different sources of information tend to provide divergent pictures of children's as well as adolescents' social competence. As in the meta-analysis by Renk and Phares (2004) we found the strongest relationships to exist between the ratings of teachers and peers. The lowest correlations exist between the ratings of self and others (peers and teachers).

Our point of view is that the low correlations do not mean that the scale is not reliable or that some ratings are "wrong". Instead, we argue that while studying social competence it is important to notice that the ratings are always affected by several factors, including students' age, gender, ethnicity, and other skills such as motivation or academic skills, as well as the setting in which the student is in or the environment, culture and gender and position of the teacher (as well as the peers) completing the evaluations (Semrud-Clikeman, 2007). On the other hand, although self ratings may be biased by individuals tending to underestimate their own negative behaviour and overestimate their own positive social behaviour (Eisenberg & Mussen, 1989), they are also especially important since they are based on information that is inaccessible to others. While planning an intervention to help a child with low social competence and consequent risk for further psychosocial problems, it is worth being aware of what she/he and her/his peers and teachers think about her/his social behaviour.

The third and main aim of this study was to model, whose ratings are the ones potentially predicting students' later psychosocial ill-being. Among the elementary school children, self ratings of low prosocial behavior and high antisocial behavior predicted later loneliness and social anxiety. This means that the children whose self-image of their own social behavior was more negative than that of others were more lonely and anxious later on than the others, who evaluated themselves more positively. According to Anderson, Horowitz, and French (1983), lonely and depressed persons differ in the nature of their attributional style, in the sense of ascribing interpersonal failures to permanent defects in themselves. Hence, if a child thinks that she or he is socially incompetent, she or he may give up even trying to interact with others and choose to be alone – which, in turn, strengthens her or his self-image of poor social functioning.

On the other hand, for lower secondary school adolescents, the peer and teacher ratings of one's social competence were found to predict her or his later psy-

chosocial ill-being. Concerning peer ratings, low prosocial behavior predicted later loneliness, social anxiety, and social phobia. For the teacher ratings, an unexpected pattern of ratings was found; not only the low prosocial behavior, but especially the low antisocial behaviour as evaluated by teachers, predicted later social anxiety and social phobia of the adolescents. In a sense, this indicates that these students are invisible to the teachers – they are noted to have neither pro- nor antisocial behavior in the classroom. In a way, these are the “easy students” in the classroom; however, they are also the ones facing high risks for severe mental health problems and therefore the ones that should be taken into particular consideration. However, we must realize that before analysing the data more deeply with, e.g., latent growth curve mixture modeling we cannot confirm that the students having less prosocial behavior are exactly the same than the ones having less antisocial behavior.

While interpreting these models, we have to keep in mind that like social competence, also loneliness, social anxiety and social phobia cannot be seen only as the ability or inability, skills, traits, or characteristics of an individual, but mainly elements which arise, manifest, and continue in a living interaction between people having different positions within various contexts. According to Sameroff (1993, p. 4),

... developmental outcomes are not a product of the initial characteristics of the child or the context, or even of their combination. Outcomes are the result of the interplay between child and context across time, in which the state of one affects the next state of the other in a continuous dynamic process.

Thus, the multi-perspectivity of social competence within school and peer contexts, and the developmental continuity and interactions among social behavior, loneliness, social anxiety, and social phobia, should be of particular interest when developing the well-being of our children and adolescents. Socio-emotional well-being is a product of a continuous dynamic interaction between the child or the adolescent and the experiences provided by her/his family, peers, school, and other social contexts. Furthermore, the experiences provided by the environment are not independent of the child or adolescent, since her/his previous behavior is a strong determinant of current experiences (Sameroff, 1993).

The obvious limitation of this study is that we had two age samples, instead of one sample followed from fourth until eighth grade. Moreover, we did not have the data of the children's/adolescents' psychosocial ill-being on the first measurement point, or the data of their social competence on the second measurement point. This limits the possibility to analyse the developmental pathways, e.g., the long-term stability, accumulation, or heterotypic continuum of these phenomena. Larger sample would also allow the models to be compared between genders, family related variables or multilevel associations. In order to understand our students' socio-emotional and psychosocial pathways, longitudinal data would be invaluable.

However, according to the results of this study, social competence proved to be a strong predictor for later loneliness, social anxiety, and social phobia. Further on,

it has been found to function as a mediator between parents and their children's social behavior and loneliness (Junttila, Vauras, & Laakkonen, 2007; Junttila & Vauras, 2009) and to serve as a mediator against school burnout and depression among adolescents and young adults (Holopainen, Junttila, Lappalainen, & Savolainen, 2012). The increasing prevalence rates of mental health problems during childhood and adolescence have raised the need to recognize the early signs of children's and adolescents' socio-emotional ill-being before the potential problems become more severe. Therefore, validated instruments for assessing adolescents' socio-emotional well-being are needed.

The 15-item MASCS scale is easy to use in different educational settings, and its validity and reliability have been confirmed with different age groups, i.e., kindergarten children (Kiuru et al., 2012), elementary school children (Junttila et al., 2006; Kouvo & Silvén, 2010), lower secondary school adolescents (this study), and secondary school adolescents (Holopainen, Lappalainen, & Savolainen, 2007), as well as with different cultural groups (e.g., Goudas, Magotsiou, & Hatzigeorgiadis, 2009; Metallidou et al., 2008; Metallidou et al., 2010). In light of its predictive value, it could be recommended for use as a screening tool in order to observe and consequently intervene in the early signs of children's and adolescents' socio-emotional ill-being.

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