

# Discrepant Views of Social Competence and Links with Social Phobia

Pamela-Zoe Topalli, Niina Junttila, Päivi M. Niemi, Klaus Ranta

## I. INTRODUCTION

**Abstract**—Adolescents' biased perceptions about their social competence (SC), whether negatively or positively, serve to influence their socioemotional adjustment such as early feelings of social phobia (nowadays referred to as Social Anxiety Disorder-SAD). Despite the importance of biased self-perceptions in adolescents' psychosocial adjustment, the extent to which discrepancies between self- and others' evaluations of one's SC are linked to social phobic symptoms remains unclear in the literature. This study examined the perceptual discrepancy profiles between self- and peers' as well as between self- and teachers' evaluations of adolescents' SC and the interrelations of these profiles with self-reported social phobic symptoms. The participants were 390 3<sup>rd</sup> graders (15 years old) of Finnish lower secondary school (50.8% boys, 49.2% girls). In contrast with variable-centered approaches that have mainly been used by previous studies when focusing on this subject, this study used latent profile analysis (LPA), a person-centered approach which can provide information regarding risk profiles by capturing the heterogeneity within a population and classifying individuals into groups. LPA revealed the following five classes of discrepancy profiles: i) extremely negatively biased perceptions of SC, ii) negatively biased perceptions of SC, iii) quite realistic perceptions of SC, iv) positively biased perceptions of SC, and v) extremely positively biased perceptions of SC. Adolescents with extremely negatively biased perceptions and negatively biased perceptions of their own SC reported the highest number of social phobic symptoms. Adolescents with quite realistic, positively biased and extremely positively biased perceptions reported the lowest number of socio-phobic symptoms. The results point out the negatively and the extremely negatively biased perceptions as possible contributors to social phobic symptoms. Moreover, the association of quite realistic perceptions with low number of social phobic symptoms indicates its potential protective power against social phobia. Finally, positively and extremely positively biased perceptions of SC are negatively associated with social phobic symptoms in this study. However, the profile of extremely positively biased perceptions might be linked as well with the existence of externalizing problems such as antisocial behavior (e.g. disruptive impulsivity). The current findings highlight the importance of considering discrepancies between self- and others' perceptions of one's SC in clinical and research efforts. Interventions designed to prevent or moderate social phobic symptoms need to take into account individual needs rather than aiming for uniform treatment. Implications and future directions are discussed.

**Keywords**—Adolescence, latent profile analysis, perceptual discrepancies, social competence, social phobia.

Pamela-Zoe Topalli, Niina Junttila, and Päivi M. Niemi are with the Teacher Education Department, University of Turku, Turku, FI-20014, Finland (e-mail: pazoto@utu.fi, niina.junttila@utu.fi, paniemi@utu.fi).

Klaus Ranta is with Department of Adolescent Psychiatry, Helsinki University Central Hospital, Helsinki, FI- 00029, Finland (e-mail: klaus.ranta@hus.fi).

ADOLESCENTS' perceptions about their SC are important for their psychosocial development. Positive perceptions of one's SC are associated with positive adjustment [1] and resilience [2] whereas negative self-perceptions, whether biased or not, are associated with low self-confidence, poor adjustment and social integration problems such as social avoidance and social anxiety [3]-[5]. Negatively biased self-perceptions, serve to influence children and adolescents' feelings of social anxiety, and social phobia (SP) [6], [7]. Thus, a positive self-perception may be advantageous to adolescents' well-being regardless of how others view them. This hypothesis is important, as research suggests that the perceptions of young people on their SC are not always corresponding to those of others [8]-[12]. Several studies have shown limited agreement between young people's own perceptions of their social relations and those of others [8], [13], [14]. However, research has challenged the notion that a positive perception of SC is associated positively with socio-emotional adjustment [10], [15], [16]. Scholars [17] found no evidence of positive SC perceptions affecting students' developmental adjustment while others [18] have shown that overly positive perceptions of one's SC have a negative effect. In their study, they showed that aggressive children who had overestimated their SC were less liked by their peers 30 months later than were aggressive children with more realistic and moderate views about SC. According to this point of view, positive biases about one's social relations with peers may lead to unrealistic and exaggerated expectations about reciprocally friendly behavior from others. If these expectations are not met because their peers do not perceive the relationship as equally positive, the individual may interpret the negative feedback as signs of rejection which may either lead to depressive feelings and trigger aggressive responses. Along these lines, an overly positive view of SC may have negative consequences on one's psychosocial adjustment.

Although it is clear from the existing literature that biased self-perceptions affect socio-emotional adjustment, to date, the extent to which perceptual discrepancies between self-, peer and teacher assessment of SC are linked to social phobic symptoms is not clear in the literature. Biases in self-perceptions have been studied mainly in laboratory-based contexts and mostly through written scenarios of social situations [6], [7]. Studies that have examined the links between discrepancies of perceived SC and SP symptoms considering self- peer and teacher assessments of one's SC are scarce [6], [7], [10], [19]. However, teachers are also

## II. METHOD

### A. Participants

The data used in this study are a part of a research project focusing on the socio-emotional well-being of Finnish school students. The sample (N=390) consisted of two consecutive age cohorts of which 198 (50.8%) were boys and 192 (49.2%) were girls. The participants were third-grade students of lower secondary school (approximately 15 years old) from two schools in a municipality in Southwestern Finland. Both the students and their parents were asked to provide written consent allowing the students to participate in the study. The participants were informed that participation was voluntary and that they had the right to withdraw from the study at any time during the data collection process.

### B. Measurements and Procedures

Adolescents' SC was rated with the MASCS developed by [22]. The scale consists of 15 items that load into four factors of SC. Two factors, co-operating skills (e.g. 'effectively participates in group activities') and empathy (e.g. 'is sensitive to the feelings of others'), assess the pro-social dimension of SC. The two other factors, impulsivity (e.g. 'has a short fuse') and disruptiveness (e.g. 'argues and quarrels with peers') assess the anti-social dimension of the construct. The reliability estimates (Cronbach's alpha) for peer and teacher ratings were high, between .88 and .94, and for self-ratings, the estimates varied from .68 to .80 [22]. The rating scale is a four-point scale that indicates frequency as follows: 1=never, 2=rarely, 3=frequently and 4=very frequently. The items were rated by (a) the adolescents themselves, (b) their peers and (c) their teachers.

Adolescents' SP was measured by the Social Phobia Inventory (SPIN) [30] Finnish version: [31], [32]. The original scale had 17 items and three subscales but in a validity study with a Finnish sample of 12- to 17-year-old adolescents from the general population there appeared to be just one factor, instead of the theoretically based three subscales [23], [33]. Therefore, the one-factor solution of the SPIN measurement scale was preferred for our study.

### C. Statistical Analyses

The analyses were run in Mplus software, version 6.11 [34]. Missing values were treated with the expectation maximisation method [35]. The discrepancy scores between self and peer ratings, as well as self and teacher ratings, were calculated by subtracting the peer scores from the self-scores and the teacher scores from the self-scores. For each individual, the score obtained is the difference between the pair ratings for each of the four factors of SC (cooperating skills, empathy, impulsivity and disruptiveness). A value of 0 represents absolute agreement between the evaluators of the students' SC. A negative value indicates that the person has underestimated his/her performance, whereas a positive value shows that the adolescent has overestimated his/her performance in either pro-social behaviour (cooperating skills and empathy) or anti-social behaviour (impulsivity and disruptiveness).

important evaluators of adolescents' SC since they hold different kind of information regarding their pupils' social performance [20]. Teachers have the opportunity to observe their pupils in situations where they have to cooperate and participate in peer activities, share their views as well as respect others' views, self-regulate their emotions or help and comfort others, and refrain from disruptive impulses [20]. Thus, the degree to which the self-evaluations of adolescents are in line with those of their teachers is important to be explored, in addition to the self-peer perceptual agreement.

This study aims to examine the distinct profiles of discrepant views between the self, peers and teacher regarding SC and the relationship of these profiles with social phobic symptoms among early adolescents. This study will reveal important information on individuals at risk of developing SP symptoms and enhance our understanding of adolescents' socio-emotional well-being.

### A. Social Competence

SC has been described as the ability to effectively make and maintain positive social outcomes by organising one's own personal and environmental resources [21]. It has also been presented as the ability to collaborate, empathise and prohibit disruptive impulses in school contexts [22], [23]. For individuals to be considered socially competent, they should exhibit socially desirable behaviours, such as cooperating and participating in peer activities; helping, sharing with and comforting others; and refraining from anti-social behaviours, such as impulsive and disruptive behaviour.

### B. Social Phobia

SP (nowadays referred to as SAD) is common psychiatric disorder that affects roughly 9% of adolescents during their lifetime [24]. It is characterized by a marked and persistent fear of social performance in one or more social situations, (e.g., talking to a stranger or peer, going to a party, giving a speech) which evokes extreme discomfort or distress and avoidance of such situations [25]. Those who suffer from social-phobic symptoms expect negative outcomes from others' evaluations regarding their social performance [26] and therefore, exposure to social situations poses a threat for them. This in turn leads to either enduring the situation with significant distress or to social withdrawal [19], [27]. Onset of the disorder typically occurs during late childhood or early adolescence [28], [29] and is likely to persist if not treated [29].

### C. Aims of the Study

This study aimed to identify different sub-groups (latent classes) of adolescents' SC profiles in relation to the discrepancies between self-peer and self-teacher evaluations, as well as the interrelation of these profiles with social phobic among adolescents. This study was guided by the following research question:

- 1) What kinds of perceptual discrepancy profiles regarding one's SC are identifiable among early adolescents?
- 2) How are these perceptual discrepancy profiles of SC related to the self-reported SP symptoms?

Next, LPA using the resultant discrepancy scores was performed to identify adolescents with similar patterns of perceived SC (i.e. a combination of their SC factors, namely, cooperating skills, empathy, impulsivity and disruptiveness). A model-based variant of traditional cluster analysis, LPA aims to find the unobserved sub-populations (latent classes) within the data [36]. After the latent groups of the adolescents' perceived SC were established, the mean comparisons tests were performed with Mplus; SP was added as an auxiliary variable.

#### D. The Fit Indexes

To compare the resultant latent profile classes, we used the log-likelihood (log L) value (where a higher number indicates a better fit), the Akaike information criterion (AIC) and the Bayesian information criterion (BIC). The AIC and BIC serve as the guide to choosing between competing statistical models, in which the smaller is the value of AIC and BIC, the more parsimonious it is [37]. Additionally, we used the entropy value (which varies between 0 and 1) because a value closer to 1 indicates a clearer classification and the probability that the estimates of cases belonging to each class [36].

### III. RESULTS

The descriptive statistics for the adolescents' self-, peer-, and teacher-evaluated SC and social phobic symptoms are presented in Table I. Because of the large number of study variables the descriptive statistics are presented as sum scores. The skewness and kurtosis of the sum scores were within reasonable limits, that is, between -2.0 and 2.0 for skewness and between -7.0 and 7.0 for kurtosis [38].

TABLE I  
 DESCRIPTIVE STATISTICS FOR SC AND SP

	Min	Max	Mean	SD	Skewness	Kurtosis
SC/self-ratings						
Cooperating skills	5.00	20.00	14.84	2.64	-.29	.78
Empathy	3.00	12.00	9.43	1.55	-.37	.87
Impulsivity	3.00	12.00	5.04	1.80	1.07	1.75
Disruptiveness	4.00	16.00	6.68	2.29	.84	1.03
SC/peer ratings						
Cooperating skills	7.27	19.17	13.58	2.08	-.26	-.48
Empathy	5.53	10.75	8.54	1.03	-.38	-.09
Impulsivity	3.24	9.15	5.02	1.09	1.15	1.31
Disruptiveness	4.25	11.21	6.68	1.43	.96	.61
SC/teacher ratings						
Cooperating skills	5.00	20.00	13.41	3.31	-.89	-.35
Empathy	3.00	12.00	8.82	1.83	-.12	-.027
Impulsivity	3.00	12.00	4.97	1.95	.93	.47
Disruptiveness	4.00	15.00	6.87	2.60	.82	.34
SP	0.00	61.00	10.98	9.53	1.42	2.79

The correlations between the variables cooperating skills (CO), empathy (EM), impulsivity (IM), disruptiveness (DI) of SC within and between evaluators (self, peers and teacher) and SP are presented in Table II. Most of the correlations between the variables (CO, EM, IM, DI) within and between evaluators (self, peers and teacher) and SP were statistically significant

but low in magnitude, indicating that the three sources of information hold different views regarding the adolescents' SC. As can be seen from Table II, the strongest correlations were found between peer and teacher ratings.

#### A. Latent Profiles of Discrepancies between Self-Peer and Self-Teacher Ratings of Adolescents' SC

The first aim of this study was to identify the discrepancy profiles of adolescents' SC, as evaluated by the self-, peer- and teacher ratings. The discrepancy values of self (-) minus peers and self (-) minus teacher were calculated and then analysed using LPA. The resultant log L, AIC, BIC and entropy estimates, as well as the class propositions and average latent class posterior probabilities for the consecutive number of classes (1, 2, 3, 4, 5 and 6), are presented in Table III. To choose the optimal number of classes, we used the criterion to be guided with (i) the fit of the model (using log L, AIC and BIC), (ii) the distinguishability of the latent classes (using entropy and the average latent class posterior probabilities), (iii) the latent class sizes (class propositions) and (iv) the theoretical justification and interpretability of the latent classes [39]. With regard to the model for self-peers, the log L, AIC and entropy estimates preferred the six-class solution; however, the BIC, the class propositions and the latent class posterior probabilities supported the five-class solution. For the self-teachers model, the log L and AIC estimates preferred the six-class solution; however, the BIC and entropy estimates, the class propositions and the latent class posterior probabilities supported the five-class solution. Based on the theoretical justification, the interpretability of the latent classes and the comparability of the classifications, the five-class solution was chosen for both the self-peer and self-teacher profiles.

The five classes of discrepancies between the self- and peer ratings of SC (SC) were labelled according to their profiles as (1) an extremely negative perception of SC (6.1%), (2) a negative perception of SC (34.1%), (3) a quite realistic perception of SC (13.8%), (4) a positive perception of SC (27.7%) and (5) an extremely positive perception of SC (18.3%). The profiles are presented in Fig. 1. For the discrepancies between the self- and teacher ratings, the classes were labelled as (1) an extremely negative perception of SC (10.8%), (2) a negative perception of SC (4.8%), (3) a quite realistic perception of SC (37%), (4) a positive perception of SC (25%) and (5) an extremely positive perception of SC (22.5%). The profiles are presented in Fig. 2. See Table IV for an overview of the categorisation of the profiles and their characteristics.

#### B. Associations of Discrepancy Profiles with SP

The second aim of this study was to examine whether adolescents belonging to different latent classes evaluated their own SP symptoms differently. The lowest means in SP appeared in the profiles of adolescents who reported a positive perception or an extremely positive perception of their SC as well as a quite realistic perception of their own SC compared to how peers and teachers evaluated them. The highest means

of SP symptoms were found in the profiles of adolescents with a negative or an extremely negative self-SC compared to how others view them. The p-values for the differences between the latent classes are presented in the notes of Fig. 1 for the self-peer discrepancies and Fig. 2 for the self-teacher discrepancies.

#### IV. DISCUSSION

This study aimed to identify the discrepancy profiles of adolescents' SC and how these discrepancy profiles are related to the adolescents' SP. The results revealed five classes of discrepancy profiles. Adolescents who had negative or extremely negative perceptions of their SC compared to the evaluations of their peers and teachers reported the highest levels of SP symptoms. Adolescents who held more realistic views reported the least social-phobic symptoms in the self-peer model while those who had a positive or an extremely positive perception of their own SC reported the least social-phobic symptoms in the self-peer model.

LPA showed the following distinct profiles for the self-peer model: an extremely negative perception of SC, a negative perception of SC, a quite realistic perception of SC, a positive perception of SC, and an extremely positive perception of SC; and for the self-teacher model: an extremely negative perception of SC, a negative perception of SC, a quite realistic perception of SC, a positive perception of SC, and an extremely positive perception of SC. In cases of very slight disagreement the profiles were labelled as having quite realistic views. The profiles of adolescents' perceptual discrepancies in regard with their SC that emerged in our study indicate that a considerable part of the adolescent population see and report themselves differently from how others see them, which provide partial support to the findings of previous studies [10], [7] who reported discrepant views between how adolescents viewed themselves and how their peers evaluated them. This is particularly important given that biased self-views have been associated with social integration problems [6].

The findings of this study suggest that the different discrepancy profiles of the adolescents' SC were differently associated with social phobic symptoms. More specifically, realistic perceptions, as well as overestimation and extreme overestimation of SC, appeared to be associated with the least social phobic symptoms. This result is an important one because previous research mainly focused on negatively biased perceptions of SC or positive ones but not on those who perceived themselves similar to how others view them.

The findings show that the social self-evaluations of non-social phobic individuals can be relatively accurate. The adolescents who perceived themselves quite realistically in terms of SC were among those with the lowest number of social phobic symptoms. The fact that a relatively small proportion of adolescents in our study (13,8% in the self-peer model; 37% in the self-teacher model) was found to have realistic views about their SC is contradictory to what previous research suggested that as children mature, their views tend to become more congruent with those of their peers [40]. In

contrast, the proportion of the adolescents whose views on their SC were in line with their peers was considerably smaller than the proportion of those who were found to be in agreement with their teachers' evaluations. The group of adolescents with quite realistic perceptions of SC in this study evaluated themselves quite close to how their peers and teachers evaluated them on the four separate dimensions of SC (co-operating skills, empathy, impulsivity & disruptiveness). Because of this agreement between the self and others, making conclusions about how socially skilful the adolescents were was impossible. Assuming that these adolescents might be anything from socially skilful to socially deficient might be reasonable. What is important is that our study shows that a close contact with reality and accurate information processing are linked with low social phobic symptoms.

Our results indicate that in the model of self-teacher adolescents who overestimated or extremely overestimated their SC reported the least social phobic symptoms and in the model self-peer those who overestimated and extremely overestimated their SC reported lower social phobic symptoms compared to those with negative or extremely negative biases. This finding lends support to the notion that positively perceived SC is a sign of mental health and is connected with positive outcomes [1], [2], [8]-[12]. Based on past research [41] adolescents who view themselves positively tend to interpret social cues in a positive manner too. Even when they are confronted with ambiguous or contradictory to their beliefs information, they process incoming information in a way that these can fit into their prior belief system. This might explain why they have overestimated their SC. Furthermore, there might be a beneficial side effect of positive bias that applies in the way adolescents interact with others. More specifically, those who believe they are socially skilful might not fear being exposed to social situations and even actively initiate contact in social situations more often as well as feel discouraged less easily if their initial efforts are not fruitful [41]. This in turn might be the reason that adolescents with positively biased or overly positively biased views of their SC reported the least social phobic symptoms.

On the other hand, this result might deserve as well additional explanation. In this study, adolescents who held an extremely positive view of their SC overestimated their cooperating skills and empathy (prosocial behaviour) and underestimated their impulsive and disruptive behaviours (antisocial behaviour) compared to how their peers and teachers evaluated them. Although positively biased perceptions of ones' SC seemed to be linked with lower social phobic symptoms this does not necessarily prevents them from social integration problems.

Research [10], [15]-[18] has shown that an overly positive perception of SC might create unrealistic and exaggerated expectations of friendly behaviour from others. If these expectations are not met because peers do not perceive the relationship with the person as equally positive, the individual has two choices—either to reject it, which may result in anger and frustration, or accept the negative attitude of others and interpret it as a sign of rejection, which entails the risk of

depressive feelings [18]. In line with this assumption, [10] scholars showed links between extreme overestimation of self-SC and elevated levels of exhibited aggression. In our study the adolescents who extremely overestimated their SC were evaluated by their peers and teachers as more antisocial than they reported to be. Along these lines, their positively biased perception of their SC could be connected with externalizing problems such as antisocial behaviour rather than internalizing problems such as SP. This is an important aspect to consider in the interpretation of results in practice for prevention and intervention purposes.

We also found that negative bias in SC perceptions, whether negatively or extremely negatively, were strongly associated with social phobic symptoms. In this study, adolescents who underestimated their SC exhibited the highest number of social phobic symptoms. This finding is consistent with previous research suggesting that negative biases in the perceptions of one's SC might be detrimental for mental health [3]-[7], [42].

Interpersonal models have indicated social difficulties as precursors of psychopathology supporting that the negative views of one's competence might be accurate representations of their social performance and based on the fact that individuals possess fewer positive social characteristics and are aware of it; on the other hand, cognitive models have focused on maladaptive or biased information processing supported that negative views of individuals can be unjustified by their social characteristics compared to their actual social performance and thus reflect inaccuracies and cognitive distortions of their social performance. We confirmed the assumption of the cognitive models given that the negative and extremely negative perceptions of adolescents in our study were inconsistent with those of others (peers and teachers). Thus, adolescents with the highest social phobic symptoms do not seem to be socially deficient. Instead they are viewed by their peers and teachers as more prosocial and less antisocial than they believe for themselves.

## V. CONCLUSION

The results of this research can be of value in terms of future research directions and practical implications. First, the results indicate that accurate information processing plays an important role for mental health. Second, this study highlights that positive and extremely positive biases in one's SC perceptions are associated with low number of social phobic symptoms but on the other hand they might indicate the existence of externalizing problems such as aggression. This is an important point to be taken into account when considering intervention approaches. Finally, the findings illustrate the profiles of adolescents with high number of self-reported social phobic symptoms and thus, suggest the need for intervention aiming to alleviate initial symptoms of SP before the establishment of such cognitive patterns and the clinical manifestation of the disorder. This result is particularly important during the developmental phase of adolescence because puberty may be a challenge in itself for adolescents' emotional well-being.

The distinct profiles and discrepancies in the reported SC indicate that interventions targeting social phobic symptoms should adjust their methods and approach to the needs of different sub-groups rather than being uniform. For instance, based on our findings adolescents who hold negatively or extremely negatively biased perceptions of their SC might benefit from cognitive behavioural therapy and not from social skills training.

On the other hand, those who hold overly positive perceptions of their SC might be in need of social skills improvement given that in our study these adolescents were evaluated by their peers and teachers as considerably less cooperating and empathetic and much more impulsive and disruptive. In line with the suggestion [18] that an overly positive perception of SC might create unrealistic and exaggerated expectations of friendly behaviour from others it is reasonable to assume that the overly positive views of adolescents' social performance prevent them from realizing their social incompetence missing opportunities to improve themselves in terms of social performance outcomes.

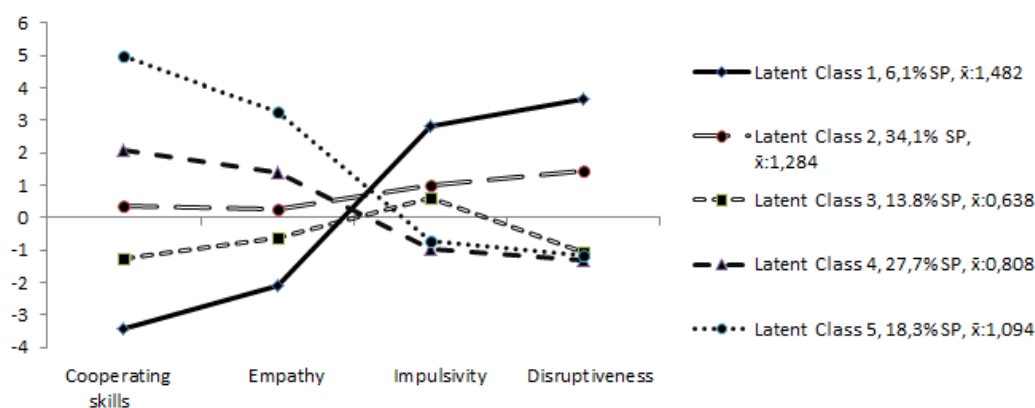


Fig. 1 Latent classes of self-peer rating discrepancies regarding adolescents' SC in 9<sup>th</sup> grade

TABLE II  
CORRELATIONS BETWEEN SC (COOPERATING SKILLS, EMPATHY, IMPULSIVITY, DISRUPTIVENESS) WITHIN AND BETWEEN RATERS (SELF, PEERS, AND TEACHERS) AND SP

	Self- evaluations of SC				Peer evaluations of SC				Teacher evaluations of SC			SP
	CO	EM	IM	DI	CO	EM	IM	DI	CO	EM	IM	DI
Self- evaluations of SC												
Cooperating skills												
Empathy	.69***											
Impulsivity	-.20***	-.33***										
Disruptiveness	-.15***	-.25***	.66***									
Peer evaluations of SC												
Cooperating skills	.30***	.12*	-.02	-.03								
Empathy	.24***	.15***	-.15***	-.12*	.86***							
Impulsivity	-.01	-.09	.35***	.32***	-.23***	-.48***						
Disruptiveness	-.06	-.01**	.26***	.39***	-.27***	-.52***	.78***					
Teacher evaluations of SC												
Cooperating skills	.24***	.12*	-.06	.11*	.60***	.53***	-.18***	-.31***				
Empathy	.16***	.19***	-.16***	-.20***	.43***	.50***	-.31***	-.44***	.71***			
Impulsivity	.02	-.13*	.23***	.31***	-.13**	-.26***	.38***	.44***	-.24***	-.50***		
Disruptiveness	.04	-.11*	.21***	.32***	-.07	-.27***	.44***	.59***	-.26**	-.52***	.80***	
SP	-.25***	-.13**	.09	.00	-.18***	-.09	-.13**	.12*	-.12	.03	-.06	-.12*

Notes. CO, cooperating skills; EM, empathy; IM, impulsivity; \*\*\*. Correlation is significant at the 0.00 level (2-tailed). \*\*. Correlation is significant at the 0.01 level (2-tailed). \*. Correlation is significant at the 0.05 level (2-tailed).

TABLE III  
MODEL FIT ESTIMATES, DISTINGUISHABILITY ESTIMATES, CLASS PROPORTIONS AND AVERAGE LATENT CLASS POSTERIOR PROBABILITIES FOR THE SERIES OF DISCREPANCIES BETWEEN SELF- PEER AND SELF- TEACHER RATINGS OF SC LPA

	Log likelihood	AIC	BIC	Entropy	Class proportions	Average latent class posterior probabilities
SC discrepancies/self-peer						
1 Class	-3029.166	6074.331	6105.289	1.000	1.000	1.000
2 Class	-2914.441	5862.882	5928.660	.699	.649/.350	.925/.896
3 Class	-2845.754	5743.508	5844.110	.736	.084/.615/.299	.884/.876/.900
4 Class	-2792.178	5654.355	5789.781	.778	.387/.070/.367/.175	.890/.901/.855/.916
5 Class	-2765.759	5619.519	5789.768	.791	.118/.361/.053/.290/.175	.855/.876/.946/.846/.910
6 Class	-2753.541	5613.514	5818.641	.810	.088/.116/.351/.329/.032/.082	.940/.886/.888/.840/.846/.864
SC discrepancies/self-teacher						
1 Class	-3377.334	6770.668	6801.577	1.000	1.000	1.000
2 Class	-3262.016	6558.031	6623.713	.695	.343/.656	.884/.924
3 Class	-3204.005	6460.009	6560.463	.716	.329/.215/.454	.822/.926/.882
4 Class	-3167.542	6405.084	6540.311	.751	.119/.235/.375/.269	.873/.864/.842/.898
5 Class	-3142.846	6373.693	6543.693	.775	.107/.247/.204/.403/.036	.871/.856/.941/.828/.900
6 Class	-3120.150	6346.301	6551.073	.752	.218/.119/.167/.161/.184/.147	.876/.892/.791/.811/.756/.856

TABLE IV  
DESCRIPTIVE STATISTICS FOR LPA CLASSES LABELED ACCORDING TO THEIR PROFILES

Classes	V	Means (SD)		Profile Characteristics	Classes	V	Means (SD)	
		Self	Peer				Self	Teacher
1 (6.1 %)	CO	11.1 (3.3)	14.5 (1.8)	Extremely negative biases of SC	1 (10.8 %)	CO	13.4 (2.2)	16.5 (2.8)
	EM	7.1 (1.8)	9.1 (0.9)			EM	8.5 (1.2)	10.8 (1.1)
	IM	7.5 (2.6)	4.7 (0.7)			IM	5.5 (1.1)	3.3 (0.75)
	DI	9.7 (2.5)	6.1 (1.1)			DI	6.9 (1.5)	4.7 (1.1)
2 (34.1 %)	CO	14.6 (2.2)	14.3 (1.8)	Negative biases of SC	2 (4.8 %)	CO	13 (4.8)	11.6 (3.8)
	EM	9.1 (1.2)	8.8 (0.9)			EM	8.7 (3)	8.5 (2.1)
	IM	5.6 (1.2)	4.7 (0.8)			IM	8.3 (2.7)	4.3 (1.5)
	DI	7.6 (1.4)	6.2 (1.2)			DI	10.5 (3.4)	5.7 (2.3)
3 (13.8 %)	CO	13.1 (2.1)	14.4 (2.1)	Quite realistic perceptions of SC	3 (37 %)	CO	11.6 (3.8)	13.4 (2.7)
	EM	8.3 (1.1)	8.9 (0.9)			EM	7 (1.9)	9.1 (1.6)
	IM	4.3 (1.4)	4.9 (1)			IM	9 (1.6)	4.1 (1.5)
	DI	5.3 (1.5)	6.4 (1.3)			DI	9 (3.4)	5.8 (2)
4 (27.7 %)	CO	15.2 (2)	13.2 (1.8)	Positive biases of SC	4 (25 %)	CO	14.1 (2.2)	14.7 (2.6)
	EM	9.8 (1.2)	8.4 (0.8)			EM	8.9 (1.3)	9 (1.4)
	IM	4.1 (1.2)	5 (1)			IM	4.2 (1.3)	5.7 (1.5)
	DI	5.4 (1.6)	6.6 (1.4)			DI	5.9 (1.8)	7.9 (2.1)
5 (18.3 %)	CO	16.8 (2.4)	11.8 (1.8)	Extremely positive biases of SC	5 (22.5 %)	CO	16.3 (2.5)	10.6 (2.8)
	EM	10 (1.1)	7.5 (0.9)			EM	10.4 (1.4)	7 (1.2)
	IM	4.9 (2.2)	5.7 (1.2)			IM	4.2 (1.6)	6.2 (2.1)
	DI	6.6 (3)	7.7 (1.4)			DI	5.8 (2.2)	8.7 (2.7)

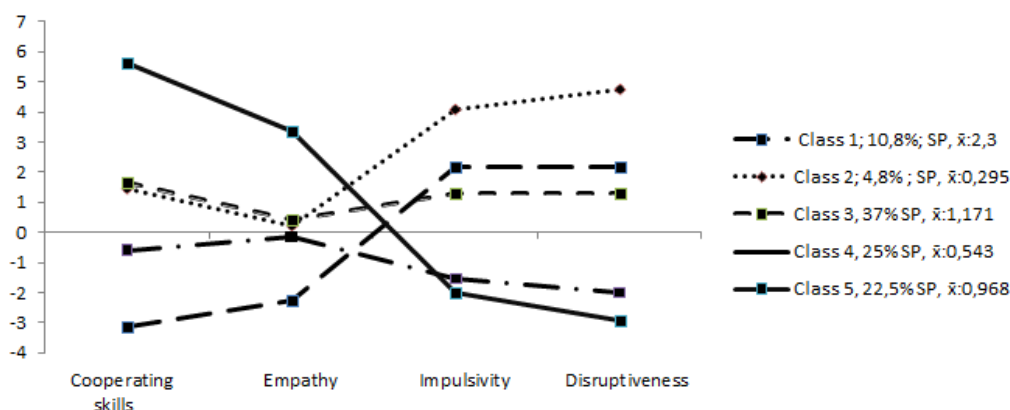


Fig. 2 Latest classes of self-teacher rating discrepancies regarding adolescents' SC in 9<sup>th</sup> grade

An advantage of this study is the use of multiple evaluators for the assessment of adolescents' SC, a practice that has been recommended by scholars when studying SC [42]. Moreover, methodologically, the report of such profiles using LPA which is a person-centred data analytic method instead of variable-centred approaches that have been commonly used in previous studies, adds value to the current study. Despite its strengths, this study also has limitations, such as the use of cross-sectional data which only reflect the prevailing situation not allowing any conclusions regarding causal relationships. To overcome this limitation, future studies should aim for longitudinal relations between SC discrepancy profiles and social phobic symptoms.

#### REFERENCES

[1] Chen X, Liu M, Rubin KH, Cen GZ, Gao X, Li D. Sociability and prosocial orientation as predictors of youth adjustment: A seven-year longitudinal study in a Chinese sample. *Int J Behav Dev*. 2002;26(2):128–36.

[2] Childs HF, Schneider HG, Dula CS. Adolescent adjustment: Maternal depression and social competence. *Int J Adolesc Youth (Internet)*. 2001;9(2-3):175–84.

[3] Bergeron L, Valla J-P, Smolla N, Piche G, Berthiaume C, St-Georges M. Correlates of depressive disorders in the Quebec general population 6 to 14 years of age. *J Abnorm Child Psychol*. 2007;35(3):459–74.

[4] Brown BB, Von Bank H, Steinberg L. Smoke in the looking glass: Effects of discordance between self- and peer rated crowd affiliation on adolescent anxiety, depression and self-feelings. *J Youth Adolesc*. 2008;37(10):1163–77.

[5] Whitton SW, Larson JJ, Hauser ST. Depressive symptoms and bias in perceived social competence among young adults. *J Clin Psychol*. 2008;64(7):791–805.

[6] Muris P, Merckelbach H, Damsma E. Threat Perception Bias in Nonreferred, Socially Anxious Children. *J Clin Child Psychol (Internet)*. 2000;29(3):348–59.

[7] Uhrlass DJ, Schofield CA, Coles ME, Gibb BE. Self-perceived competence and prospective changes in symptoms of depression and social anxiety. *J Behav Ther Exp Psychiatry*. 2009;40(2):329–37.

[8] Brendgen M, Little TD, Krappmann L. Rejected children and their friends: A shared evaluation of friendship quality? *Merrill Palmer Q*. 2000;46(1):45–70.

[9] Brendgen M, Vitaro F, Turgeon L, Poulin F. Assessing aggressive and depressed children's social relations with classmates and friends: A matter of perspective. Vol. 30, *Journal of Abnormal Child Psychology*. 2002. p. 609–24.

[10] Brendgen M, Vitaro F, Turgeon L, Poulin F, Wanner B. Is there a dark side of positive illusions? Overestimation of social competence and subsequent adjustment in aggressive and nonaggressive children. *J Abnorm Child Psychol*. 2004;32(3):305–20.

[11] Cillessen AHN, Bellmore AD. Social skills and interpersonal perception

in early and middle childhood. In: *Blackwell handbook of childhood social development*. 2002. p. 356–74.

[12] Larouche M-N, Galand B, Bouffard T. The illusion of scholastic incompetence and peer acceptance in primary school. *Eur J Psychol Educ*. 2008;23(1):25–39.

[13] Patterson CJ, Kupersmidt JB, Griesler PC. Children's Perceptions of Self and of Relationships with Others as a Function of Sociometric Status. *Child Dev*. 1990;61(5):1335–49.

[14] Panak WF, Garber J. Role of aggression, rejection, and attributions in the prediction of depression in children. *Dev Psychopathol (Internet)*. 1992;4(1):145–65.

[15] Baumeister RF, Bushman BJ, Campbell WK. Self-Esteem, Narcissism, and Aggression: Does Violence Result From Low Self-Esteem or From Threatened Egotism? *Curr Dir Psychol Sci*. 2000;9(1):26–9.

[16] Zakriski AL, Coie JD. A Comparison of Aggressive-Rejected and Nonaggressive-Rejected Children's Interpretations of Self-Directed and Other-Directed Rejection. *Child Dev (Internet)*. 1996;67:1048–70.

[17] McGrath EP, Repetti RL. A longitudinal study of children's depressive symptoms, self-perceptions, and cognitive distortions about the self. *J Abnorm Psychol (Internet)*. 2002;111(1):77–87.

[18] Hughes JN, Cavell TA, Prasad-Gaur A. A Positive View of Peer Acceptance in Aggressive Youth Risk for Future Peer Acceptance. *J Sch Psychol (Internet)*. 2001;39(3):239–52.

[19] Spence SH, Donovan C, Brechman-Toussaint M. The treatment of childhood social phobia: the effectiveness of a social skills training-based, cognitive-behavioural intervention, with and without parental involvement. *J Child Psychol Psychiatry (Internet)*. 2000;41(6):713–26.

[20] Renk K, Phares V. Cross-informant ratings of social competence in children and adolescents. *Clin Psychol Rev*. 2004;24(2):239–54.

[21] Anderson-Butcher D, Iachini AL, Amorose AJ. Initial reliability and validity of the Perceived Social Competence Scale. *Res Soc Work Pract (Internet)*. 2007;18:47–54.

[22] Junttila N, Voeten M, Kaukiainen A, Vauras M. Multisource Assessment of Children's Social Competence. *Educ Psychol Meas (Internet)*. 2006;66(5):874–95.

[23] Junttila Niina, Niemi, M. Päivi, Laakkonen, Eero; Ranta K. Modeling the interrelations of adolescents' loneliness, social anxiety and social phobia. *Sci Ann Psychol Soc North Greece*. 2010;8:69–99.

[24] Burstein M, He JP, Kattan G, Albano AM, Avenevoli S, Merikangas KR. Social phobia and subtypes in the National Comorbidity Survey-Adolescent Supplement: Prevalence, correlates, and comorbidity. *J Am Acad Child Adolesc Psychiatry*. 2011;50(9):870–80.

[25] American Psychiatric Association. *American Psychiatric Association, 2013. Diagnostic and statistical manual of mental disorders (5th ed.) (Internet)*. American Journal of Psychiatry. 2013. 991 p.

[26] Voncken MJ, Bögels SM, Peeters F. Specificity of interpretation and judgemental biases in social phobia versus depression. *Psychol Psychother Theory, Res Pract (Internet)*. 2007;80(3):443–53.

[27] Stein MB, Stein DJ. Social anxiety disorder. *Lancet*. 2008;371(9618):1115–25.

[28] Beesdo K, Bittner A, Pine DS, Stein MB, Höfler M, Lieb R, et al. Incidence of Social Anxiety Disorder and the Consistent Risk for Secondary Depression in the First Three Decades of Life. *Arch Gen Psychiatry (Internet)*. 2007;64(8):903.

[29] Kashdan TB, Herbert JD. Social anxiety disorder in childhood and

- adolescence: current status and future directions. *Clin Child Fam Psychol Rev*. 2001;4(1):37–61.
- [30] Connor KM, Davidson JRT, Erik Churchill L, Sherwood A, Foa E, Weisler RH. Psychometric properties of the social phobia inventory (SPIN). New self-rating scale. *Br J Psychiatry*. 2000;176(APR.):379–86.
- [31] Ranta K, Kaltiala-Heino R, Rantanen P, Tuomisto MT, Marttunen M. Screening social phobia in adolescents from general population: The validity of the Social Phobia Inventory (SPIN) against a clinical interview. *Eur Psychiatry*. 2007;22(4):244–51.
- [32] Ranta K, Kaltiala-Heino R, Koivisto A-M, Tuomisto MT, Pelkonen M, Marttunen M. Age and gender differences in social anxiety symptoms during adolescence: The Social Phobia Inventory (SPIN) as a measure. *Psychiatry Res (Internet)*. 2007;153(3):261–70.
- [33] Ranta K. Social phobia among Finnish adolescents. Tampere: Tampere: University Press; 2008.
- [34] Muthén L, Muthén B. *Mplus* (6th ed.). Los Angeles. 2010.
- [35] McKnight, P. E., McKnight, K. M., Sidani, S., & Figueredo AJ. *Missing Data: A Gentle Introduction*. New York, NY: Guilford; 2007. 164-166 p.
- [36] Wang M, Bodner TE. Growth mixture modeling: Identifying and predicting unobserved subpopulations with longitudinal data. *Organ Res Methods*. 2007;10(4):635–56.
- [37] Akaike H. Factor analysis and AIC. *Psychometrika*. 1987;52(3):317–32.
- [38] Curran PJ, West SG, Finch JF. The robustness of test statistics to nonnormality and specification error in confirmatory factor analysis. *Psychol Methods (Internet)*. 1996;1(1):16–29.
- [39] Muthén B. Statistical and Substantive Checking in Growth Mixture Modeling: Comment on Bauer and Curran (2003). *Psychol Methods (Internet)*. 2003;8(3):369–77.
- [40] Harter S. Developmental differences in the nature of self-representations: Implications for the understanding, assessment, and treatment of maladaptive behavior. *Cognit Ther Res*. 1990;14(2):113–42.
- [41] Taylor SE, Brown JD. Illusion and well-being: a social psychological perspective on mental health. *Psychol Bull*. 1988;103(2):193–210.
- [42] Semrud-Clikeman M. Social competence in children. *Social Competence in Children*. 2007. 1-299 p.