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Measuring adolescents' social goals during lower secondary school

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Abstract

The purpose of this study was to investigate Finnish adolescents' (n = 390) social goals during three years of lower secondary school at six (6) time points (from age 12 to age 16). We intended to study the measurement validity and longitudinal stability of adolescents' social goals as measured by the Interpersonal Goals Inventory for Children (IGI-C), developed by Ojanen, Grönroos and Salmivalli (2005). The interpersonal circumplex model is based on two pairs of factors: (1) agency and submission and (2) communion and separation. We aimed to test whether the phenomena of social goals could be captured as individual factors using these four qualities instead of the standard two broader dimensions; Agentic and Communal. These dimensions are usually divided into eight sub-scales according to different combinations. This hypothesized four-factor model was modeled and confirmed using longitudinal confirmatory factor analysis (LCFA). According to the LCFA, the stability within each factor was at least moderate, and the interrelations between the factors varied over time. Acceptable concurrent and discriminant validity was shown by mostly stronger correlations within the social goal sum scores than between the social goals and social anxiety scores. Compared to the original IGI-C measurement tool, the tool utilized in this study, the Scale of Interpersonal Goals for Adolescents (SIG-A), provides a more simplified measurement. This simplified measurement offers a new way to examine adolescents' social goals in terms of four separate factors. Moreover, with this measurement tool, it is possible to study the social development of adolescents in a more detailed manner − one social goal at a time.

Keywords: social goals, interpersonal goals, measurement validity, longitudinal stability, adolescence

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The purpose of this study was to investigate adolescents' social goals during three years of lower secondary school from age 12 to age 16 (also referred to as middle school in many countries). Several cognitive, emotional and social changes are known to occur simultaneously in the educational transition from elementary to lower secondary school (Urdan & Maehr, 1995; Zirkel, 1992). Gaining peer approval, intimacy and intimate friendships become important as adolescents strive for autonomy from their parents (Buhrmester, 1990; Ojanen, Grönroos & Salmivalli, 2005). In a new school environment, adolescents have to find their place among peers to gain acceptance and avoid exclusion. As many are often unsure of themselves and concerned about the opinions of others, some may alienate themselves from their peers (Ryan & Shin, 2011), while others may conform to the norms and expectations of their peers in the desire to belong to and identify with them (Juvonen & Cardigan, 2002; Urdan & Schoenfelder, 2006).

The term *social goals* (often called interpersonal goals) has been used to refer to the desired social outcomes that adolescents choose either to achieve or avoid (Crick & Dodge, 1994; Jarvinen & Nicholls, 1996) (e.g., whether he or she prefers to join others or remain alone). According to the interpersonal circumplex model (e.g., Dryer & Horowitz, 1997; Locke, 2000, 2003; Ojanen et al., 2005; Wiggins, 1979; see Figure 1), individuals' social goals can be conceptualized in terms of two broad interpersonal factors: agency and communion. Different social goals can be seen as opposites: *Agency* concerns independence, authority, dominance and the appearance of confidence, whereas its opposite, *submissiveness*, speaks to a tendency to avoid difficult situations and to conform to others' expectations. *Communion* refers to intimacy and social needs, while it's opposite, *separation*, relates to concealing thoughts and emotions and keeping a distance from others (e.g., Ojanen et al., 2005). Social goals in the circumplex model can be divided into eight scales (agentic, agentic and communal, communal, communal and submissive, submissive, submissive and separate, separate, and separate and agentic), and based on these scales, agentic and communal vector scores can be calculated (see Ojanen et al., 2005; Locke, 2003)

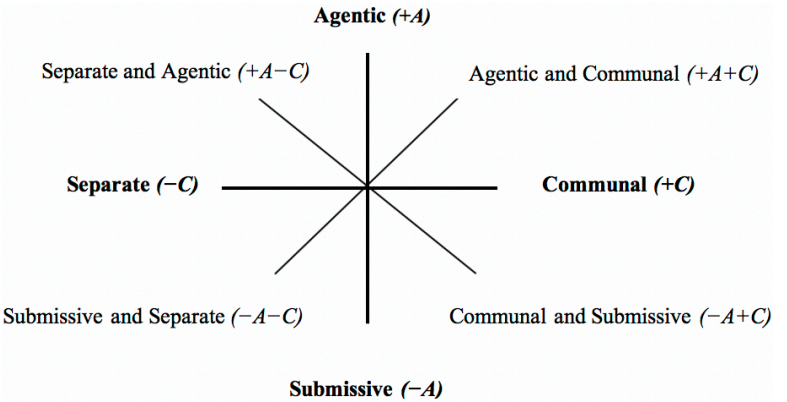

Figure 1:
The Interpersonal Circumplex model.

Belonging to a peer group often plays an important role in an adolescent's adjustment to a new educational environment (Aikins, Bierman & Parker, 2005; Pratt & George, 2005), and social goals represent one of the most important aspects of social development during adolescence (DeYoung, Weisberg, Quilty & Peterson, 2013; Hartup & Van Lieshout, 1995; Trucco, Wright & Colder, 2014). It is plausible that individual development and life experiences, including contextual changes both in the transition to adolescence and during it, may have an impact on changes to and the gradual stabilization of an adolescent's social goals. According to prior studies (e.g., Ojanen et al., 2005) of children and early adolescents, connectedness to peers and communal goals are more important than agentic goals. The agentic goals of children 11 to 13 years of age tend to increase along with communal goals (Ojanen et al., 2005), though adolescents may develop agency more exclusively (i.e., gaining status becomes more important than being with peer groups and feelings of communion) by the end of lower secondary school (Mansfield & Wosnitza, 2010; Salmela-Aro, 2009). The evidence also suggests that submissiveness can decrease during lower secondary school (Trucco et al., 2014), which may relate to individual identity and self-esteem strengthening towards late adolescence (Erol & Orth, 2011).

The prior studies of social goals on different age groups that have utilized different methods of measurement show conflicting results. Adults' (e.g., Locke, 2000, 2003; Wright, Pincus & Lenzenweger, 2012) and children's (Ojanen et al., 2005) social goals have been measured previously using a circumplex model including vector scores (i.e., different combinations of agentic and communal goals). For example, Ojanen et al. (2005) developed the Interpersonal Goals Inventory for Children (IGI-C) scale, which includes 33 items divided into eight octants (subscales) of agentic and communal social goals (i.e., agentic, agentic and communal, communal, submissive and communal, submissive, submissive and separate, separate and agentic, and separate). The participants in the study gave answers using 4-point Likert scales (where 0 = 'not important to me at all' and 3 = 'very important to me') concerning the importance of different aspects when with peers. Based on eight subscale scores, two vector scores of agentic and communion goals were computed (see Locke, 2003). Based on these vector scores in the Ojanen et al. 2005 study, the children's social goals were placed at different sections within the circumplex model on an x (communal) or y (agentic) axis (see Figure 1).

To date, a few studies on the stability or potential changes in adolescents' social goals during their transition to lower secondary school and in subsequent years have been conducted. Only a study by Trucco et al. (2014), which examined the stability and changes of 12- to 16-year-old adolescents' social goals, has come to our attention. Exploring social goals using the eight subscales of the interpersonal circumplex model (examined separately), the study found that the increases of agentic goals found in previous studies (in which vector scores were used [see Ojanen et al., 2005]) could in fact be driven by a decrease in submissive goals. Moreover, increases of communal goals were found to also be driven by decreases in separate goals, which indicated that adolescents became less detached and socially reticent during adolescence (Trucco et. al., 2014).

To conclude, it has been shown (Trucco et. al., 2014) that, given the study of social goals using the interpersonal circumplex structure in which different goals are considered opposites of each other, it is more difficult to identify change with regard to a single goal.

Indeed, a change in one octant may affect a change in an opposite goal and, in this manner, represent increases in, for example, agency and communion factors (Trucco et al., 2014). Thus, it remains uncertain which goal actually changes.

Due to the conflicting findings of different studies (e.g., Ojanen et al., 2005; Trucco et al., 2014), social goals should be examined in a more detailed manner, one goal at a time. In the present study, we wanted to explore whether or not social goals could be studied using a measure consisting of four independent factors (communal, separate, submissive and agentic) rather than using two dimensions, wherein the factors are regarded as opposites (Ojanen et al. 2005; Locke 2002), or Trucco et al.'s (2014) eight octants.

Aims and hypotheses of the present study

First, we aim to test whether a four-factor model of communal, separate, submissive and agentic social goals fit the data. We also aim to analyse the dimensional structure, measurement validity and reliability of the IGI-C using data concerning the goals of Finnish adolescents during lower secondary school. Based on Trucco et al.'s (2014) study, we hypothesise that social goals can also be seen as individual factors instead of forming a composite score on the circumplex model (Ojanen et al., 2005). Second, we aim to examine the longitudinal stability and interrelations of each resultant factor using longitudinal confirmatory factor analysis (LCFA). Based on the findings of the previous study (Trucco et al., 2014), we can hypothesise that little to some increasing stability in the establishment of social goals during lower secondary school will be observed. Third, we aim to analyse the concurrent and discriminant validity of the resultant factors of social goals using the social anxiety scale (SAS) as a criterion variable. Drawing on theoretical models of social anxiety (Coplan, Wilson, Frohlick & Zelenski, 2006), we hypothesise that social anxiety is associated with separate goals related to social avoidance and the inhibition of self-disclosure.

Method

Participants

This study was part of a longitudinal research project titled 'Social and Emotional Learning and Well-Being in Lower Secondary School'. The participants of this study were students in two lower secondary schools within one municipality (approximately 20,000 inhabitants) in south-western Finland. Finland's compulsory education system consists of six years of elementary school and three years of lower secondary school (grades 7–9). Students in lower secondary school represent the general population, as nearly all adolescents attend these schools in the municipality. Data were collected in 2006–2010 at six time points (grades 7–9, every autumn and spring). The sample consisted of two consecutive age cohorts ($N = 458$) followed from the beginning of seventh grade (12–13 years old) to the end of ninth grade (15–6 years old). The participation rate was 85.2%. Both the

students and their parents were asked to give written consent for the students to participate in the study, and a total of 390 students agreed to participate (boys: 198 (50.8%); girls: 192 (49.2%); time point 1: $n = 387$; time point 2: $n = 386$; time point 3: $n = 383$; time point 4: $n = 380$; time point 5: $n = 379$; time point 6: $n = 375$). A total of 356 students had complete data from every measurement point, with a dropout rate of 6.2%. The students completed the questionnaires during school hours under the researchers' supervision. In the case of absences, the researchers administered the questionnaire to these students on another day to reduce the dropout rate.

School staff had no access to students' data. All participants and their parents were informed about the aims of the study and were asked to give written consent allowing them to participate in the study.

Procedure and instruments

Social goals were measured using the IGI-C scale (see Ojanen et al., 2005). The scale includes 33 items divided into eight subscales that include different combinations of agentic and communal social goals. Using a 4-point Likert scale (with 0 = 'not important to me at all' and 3 = 'very important to me'), the adolescents answered questions beginning with 'When you are with your peers, how important is it for you that…'. In this study, two items were reformulated to better fit adolescents. 'You can decide what to play' became 'You can decide what to do', and 'You are invited to join in games' became 'You are permitted to join in with others'.

To analyse the discriminant validity, we chose to use the social anxiety scale for adolescents (SAS-A; see Ranta et al., 2012) as a criterion measurement. Social anxiety is an anxiety disorder in which a person has a fear of social situations (La Greca & Lopez, 1998), and it is known to be associated with avoidance behaviours (Coplan et al., 2006). This SAS-A-scale includes three factors of adolescent social anxiety: fear of negative evaluation (e.g., 'I am afraid that others will not like me'), social avoidance and distress in general (e.g., 'It is hard for me to ask others to do things with me'), and social avoidance and distress in new situations (e.g., 'I worry about doing something new with others') (see Ranta et al., 2012). Using a 5-point Likert scale (1 = not at all, 5 = all the time), the participating adolescents answered in terms of how they felt each item described them. For the purpose of this study, we used the total sum score of the scale. The SAS-A was measured at the same time points as the IGI-C for measurement. The Cronbach's alpha values for the sum scores are presented in Table 3.

Statistical analyses

The study's data were analysed using SPSS Statistics 19 and Mplus Version 6.11 software. Participants failing to complete more than half of their IGI questionnaires were excluded from the study. Cases missing less than 50% of their data were treated using the expectation maximisation (EM) method (McKnight, McKnight, Sidani & Figueredo, 2007, pp.

164–166). To test the hypothesised factorial structure, we used LCFA (see Marsh & Grayson, 1994). LCFA tests the adequacy of specified relationships by linking indicators to their underlying constructs (Kline, 1998; McCallum & Austin, 2000). While the skewness and kurtosis of the items were within reasonable limits, they were still considerably high, and therefore the model was fitted to a covariance matrix using the robust maximum likelihood method (Satorra & Bentler, 1990). As the adolescents were nested into classes, complex modelling was used. The fit of the hypothesised model compared to the measurement model was evaluated using cut-off values as suggested by Hu and Bentler (1999). The criteria for acceptable fit included values close to 0.90 for the comparative fit index (CFI) and the Tucker–Lewis index (TLI) and values smaller than 0.08 for the root mean square error of approximation (RMSEA) and standardised root mean square residual (SRMR). Internal reliability was studied using Cronbach's alphas (with the SPSS-program) and discriminant validity in terms of the correlations between the social goals and social anxiety factor scores. Also, a test of significance for the difference between the two correlations based on dependent group was conducted using the Cocor-program and the Pearson and Filon statistical test (Diedenhofen & Munsch, 2015).

Results

Due to the large number of study variables (6 x 33), the descriptive statistics for all items (Table 1) in this study are presented only for the first time point. The complete descriptive statistics for all six consecutive time points are available from the first author. For each variable, the skewness and kurtosis were within reasonable limits (i.e., between −2.0 and 2.0 for skewness and between −7.0 and 7.0 for kurtosis) (see Curran, West & Finch, 1996).

Table 1:
Descriptive Statistics for Adolescents' (n = 376) Social Goal Items at Time Point 1

Item	M	SD	Skewness	Kurtosis
You say exactly what you want (+A+C)*	*1.87*	*.65*	*−.08*	*−.17*
COM1. You feel close to others. *(+C)*	2.15	.74	−.57	−.07
COM2.Your peers like you. *(−A+C)*	2.60	.56	−1.19	.99
You do not show your feelings in front of your peers. (−C)	1.03	.76	.60	.35
SUB1. Your peers do not get angry with you. *(−A)*	2.10	.72	−.34	.60
AGE1. The others think you are smart. *(+A)*	1.47	.76	.07	−.29
The others listen to your opinion. (+A+C)	*2.19*	*.65*	*−.47*	*.35*
Everyone feels good. (+C)	2.64	.55	−1.47	2.28
You can put the others in a good mood. (+C)	2.23	.68	−.61	.34
SEP1. You do not give away too much about yourself. *(−C)*	1.52	.79	.09	−.40
You do not do anything ridiculous. (−A−C)	*1.22*	*.90*	*.32*	*−.66*
SUB2. You do not make the others angry. *(−A)*	2.23	.85	−1.02	.44
AGE2. You appear self-confident and make an impression on the others. *(+A)*	1.62	.76	.04	−.36

Item	M	SD	Skewness	Kurtosis
The others agree to do what you suggest. (+A−C)	*1.33*	*.68*	*.16*	*−.03*
You state your opinion plainly. (+A+C)	*1.97*	*.68*	*−.40*	*.39*
COM3. Real friendship develops between you. *(+C)*	2.47	.67	−1.17	1.20
The others accept you. (−A+C)	2.56	.63	−1.57	2.93
SEP2. You keep your thoughts to yourself. *(−C)*	1.40	.78	.23	−.25
You do not say stupid things when the others are listening. (−A−C)	*1.64*	*.58*	*−.16*	*−.54*
You are able to please the others. (−A)	2.05	.67	−.34	.18
AGE3. The others respect and admire you. *(+A)*	1.42	.76	.05	−.31
SEP 3. You keep the others at a suitable distance. *(−C)*	*1.09*	*.73*	*.26*	*−.18*
Your peers do not laugh at you. (−A−C)	*1.50*	*.92*	*−.02*	*−.82*
SUB3. You do not annoy the others. *(−A)*	2.10	.84	−.77	.11
You can decide what to do. (+A−C)	.88	.67	.37	.08
You are able to tell the others how you feel. (+A+C)	1.98	.74	−.49	.14
You are accepted to join with others. (−A+C)	2.47	.69	−1.34	1.93
You don't let anyone get too close to you. (−C)	1.15	.80	.29	−.37
The group does what you say. (+A−C)	.58	.59	.54	−.13
You do not show that you care about them. (−C)	.83	.81	.79	.11
You agree with the others about things. (−A+C)	1.71	.71	−.25	−.00
You do not make a fool of yourself in front of the peers. (−A−C)	1.52	.89	.05	−.70
You let the others decide. (−A−C)	1.73	.77	−.05	−.42

*Note. The original, yet excluded based on CFA, items are written in italics and not labeled with item codes. *At the end of items in blocks are the original scales of the IGI-C-measure: agentic (+A), agentic and communal (+A+C), communal (+C), submissive and communal (−A+C), submissive (−A), submissive and separate (−A−C), separate (−C), and agentic and separate (−A−C).*

Construct validity and internal reliability

To assess the first hypothesis on whether the dimensions of social goals can be examined as separate dimensions, an eight-factor model was run first based on a previous study examining eight scales of social goals (Trucco et al. 2014). This model was tested with the original 33 items from the IGI-C measure (Table 1) divided into eight factors. The fit statistics indicated that the resulting model fit was poor (e.g. time point 1: $\chi 2$ (df) = 1,260.915 (467), CFI = 0.76, TLI = 0.72, RMSEA = 0.067 (C.I. = 0.063–0.072), SRMR = 0.112). Next, a four-factor model with all 33 items divided into four factors (communal, separate, submissive and agentic) was tested, and the model fit was also poor (e.g. time point 1: $\chi 2$ (df) = 1230.534 (105), CFI = 0.77, TLI = 0.75, RMSEA = 0.064; (C.I. = 0.059–0.068), SRMR = 0.086). According to the modification indices, many items had cross-loadings across two different factors. This result was most likely due to the vector structure and eight-goal scales of the original IGI-C scale, in which some items fit into two main dimensions simultaneously (e.g. the item 'Others listen to your opinion' was both agentic and communal).

To obtain the simplest model possible, therefore, the factor model was modified to exclude these items, resulting in a four-factor model with 12 items, with each factor consisting of the three theoretically and statistically best items (Table 1).

Table 2:
Cronbach`s Alphas for Each Factor, CFAs' Fit Indexes and Standardized Item Loadings for the Social Goals Inventory Items at all Time Points

	Time 1	Time 2	Time 3	Time 4	Time 5	Time 6
	α	α	α	α	α	α
COM	.80	.76	.77	.81	.83	.79
SEP	.61	.72	.69	.81	.77	.74
SUB	.69	.66	.67	.73	.79	.69
AGE	.74	.69	.70	.72	.69	.70
χ^2 (df)	73.010 (48)	90.398 (48)	87.474 (48)	81.036 (48)	51.367 (48)	96.581 (48)
CFI	0.971	0.949	0.954	0.972	0.992	0.947
TLI	0.960	0.930	0.937	0.962	0.989	0.927
RMSEA	0.037	0.048	0.047	0.043	0.023	0.052
SRMR	0.040	0.045	0.043	0.042	0.035	0.058
	λ	λ	λ	λ	λ	λ
	Total	Total	Total	Total	Total	Total
COM1	.717	.680	.717	.784	.849	.782
COM2	.773	.676	.681	.745	.738	.746
COM3	.797	.775	.783	.806	.820	.741
SEP1	.523	.680	.612	.788	.769	.769
SEP2	.554	.706	.630	.719	.719	.648
SEP3	.629	.685	.650	.743	.675	.700
SUB1	.557	.561	.598	.685	.725	.587
SUB2	.684	.695	.781	.788	.850	.857
SUB3	.730	.681	.592	.652	.760	.640
AGE1	.648	.596	.590	.670	.649	.604
AGE2	.660	.680	.704	.658	.702	.733
AGE3	.779	.680	.713	.732	.722	.740

Note. All item loadings were statistically significant at level ($p < 0.001$).

All but one item belonged to the original main dimensions (communal, separate, submissive and agentic; Figure 1). One item ('Your peers like you') that originally belonged to the communal and submissive subscales was slightly modified when translated into Finnish. In the item, the word *peers* was closer to the word *mates* (*kaverisi*), referring to a close relationship, so the item fit better in the communal factor than the submissive factor (Table 1).

To test whether the two main factors (communal and agentic) were enough and to take into account the previous circumplex model, we tested a two-factor-model with 12 items. However, the resulting model was not sufficient (e.g., time point 1: $\chi 2$ (df) = 331.481 (53), CFI = 0.67, TLI = 0.59, RMSEA = 1.118 (C.I. = 0.106–0.131), SRMR = 0.107), suggesting that the four-factor model with 12 items without previous cross-loadings was the

statistically best solution for examining social goals as separate dimensions. Table 2 presents the fit indices for the final solution and Cronbach's alphas at all six time points.

The final items of the four-factor-model are presented in Table 1. Next, LCFA was performed based on our hypothesis that little to some increasing stability would be observed within each factor between consecutive time points. Each latent variable of social goals consisted of three items at every time point, and continuous stability relations were modelled between these latent variables in consecutive time points, not between different latent variables. The different latent variables were allowed to correlate with each other within the same time points, and autocorrelations between the same items at different time points were allowed. The standardised item loadings, which were significant at all time points ($p < 0.001$) and above 0.50, are presented in Table 2.

Concerning internal reliability, the Cronbach's alpha values varied between .76 and .83 for the communal goals, .61 and .81 for the separate goals, .69 and .74 for the agentic goals, and .66 and .79 for the submissive goals, indicating at least adequate internal consistency (Table 2). After all modifications were completed, we chose a new title (the Scale of Interpersonal Goals for Adolescents) (SIG-A) for the present scale.

Longitudinal stability

According to our second hypothesis, we expected at least moderate stability within the factors between consecutive time points. Our hypothesis was confirmed, and the resultant stability values are presented in Figure 2. The fit indices for this longitudinal CFA model were acceptable ($\chi 2$ (df) = 3199.585 (452), CFI = 0.912, TLI = 0.90, RMSEA = 0.034, SRMR = 0.089). The stability coefficient varied between .634 and .830, indicating that the stability values within these four individual social goals between different time points were at least moderately stable during the study period.

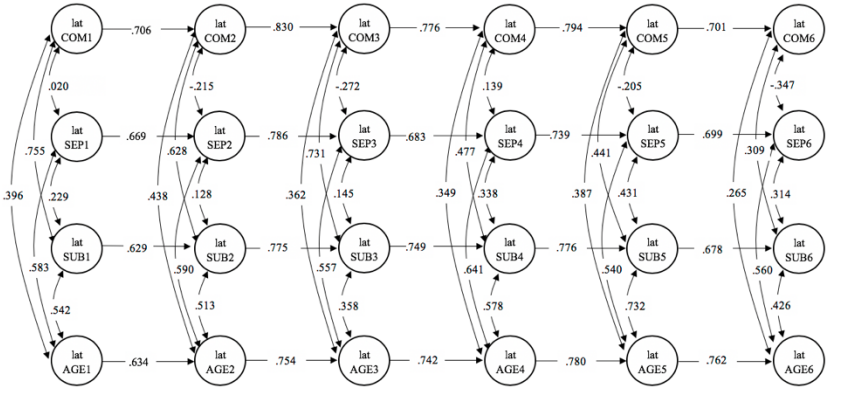

Figure 2:
Stability of Interpersonal Social Goals Inventory for Adolescents (ISGA) at time points 1–6 and the correlations between factors within time points.

Note. Each latent of social goals consists of three items in every measurement point.

Concurrent and discriminant validity

To test concurrent and discriminant validity, we calculated the correlations between the resultant factors and the factors of the SAS. According to Person and Filon's statistical z-test, the correlations within social goal factors (Figure 2) were mostly stronger than the correlations between the factor scores for social goals and social anxiety (Table 3, Table 4), thus indicating acceptable concurrent and discriminant validity. Moreover, statistically significant correlations were found between separate goals and social anxiety across all time points, and the correlations between separate and communal or separate and submissive goals were not as strong as the correlations between social anxiety and separate goals at all time points. Also the difference in the correlations between submissive and separate and submissive and social anxiety at time point 3 was not statistically significant (see Table 4). The mean values and standard deviations of the latent scores for the social goals are presented in Table 5.

Table 3:
Cronbach`s Alphas for the Social Anxiety-Sum Scores and the Correlations between Social Goals and Social Anxiety Factor Scores at the Same Time Points

	Time 1		Time 2		Time 3		Time 4		Time 5		Time 6	
	SAS	*p*	SAS	*p*	SAS	*p*	SAS	*p*	SAS	*p*	SAS	*p*
α	.90		.92		.92		.93		.93		.94	
COM	-.086	*ns.*	-.064	*ns.*	.111*	.031	-.088	*ns.*	.008	*ns.*	-.114*	*.028*
SEP	.186*	.000	.128*	.013	.201*	.000	.165*	.001	.107*	.038	.235*	.000
SUB	-.085	*ns.*	-.069	*ns.*	.125	.016	.059	*ns.*	.042	*ns.*	.143*	.006
AGE	-.002	*ns.*	.060	*ns.*	.203*	.000	.104*	0.045	.081	*ns.*	.130	.012.

Table 4:
Differences in Correlations Between Social Goals Factor Scores and Social Anxiety Factor Scores at Six Time Points.

	T1 *− SAS		T2 *− SAS		T3 *− SAS		T4 *− SAS		T5 *− SAS		T6 *− SAS	
	z	*p*	z	*p*	z	*p*	z	*p*	z	*p*	z	*p*
COM*− SEP	−1.62	*0,05*	2.26	*ns.*	6.19	*ns.*	0.77	*ns.*	3.16	*ns.*	3.86	*ns.*
COM*− AGE	−7.23	*0,00*	−7.88	*.00*	−4.09	*.00*	−6.81	*.00*	−5.83	*.00*	−5.86	*.00*
COM*− SUB	−14.79	*0,00*	−11.27	*.00*	−11.39	*.00*	−9.07	*.00*	−6.67	*.00*	−6.68	*.00*
SEP*− COM	2.22	*ns.*	4.74	*ns.*	7.41	*ns.*	4.11	*ns.*	4.44	*ns.*	8.44	*ns.*
SEP*− AGE	−6.42	*.00*	−7.67	*.00*	−6.30	*.00*	−8.59	*.00*	−9.19	*.00*	−5.57	*.00*
SEP*− SUB	−0.59	*.ns.*	0.00	*ns.*	0.84	*ns.*	−6.03	*.00*	−3.42	*.00*	−1.24	*ns.*
AGE*− COM	−5.67	*.00*	−5.51	*.00*	−2.48	*.00*	−3.42	*.00*	−4.52	*.00*	−1.82	*.03*
AGE*− SEP	−10.40	*.00*	−8.80	*.00*	−6.26	*.00*	−9.91	*.00*	−9.76	*.00*	−7−72	*.00*
AGE*− SUB	−8.29	*.00*	−6.82	*.00*	−2.43	*.00*	−6.94	*.00*	−8.13	*.00*	−4.77	*.00*
SUB*− COM	−14.77	*.00*	−11.39	*.00*	−11.07	*.00*	−6.133	*.00*	−6.03	*.00*	−2.27	*.01*
SUB*− SEP	−4.95	*.00*	−2.93	*.00*	−0.31	*ns.*	−8.17	*.00*	−4.53	*.00*	−2.81	*.00*
SUB*− AGE	−10.08	*.00*	−9.47	*.00*	−3.79	*.00*	−7.85	*.00*	−8.95	*.00*	−4.53	*.00*

Table 5:
Descriptive Statistics of the Social Goals' Sum Scores

		COM Total	SEP Total	SUB Total	AGE Total
Time 1	Mean	7.21	4.04	6.43	4.50
	SD	1.68	1.71	1.89	1.85
Time 2	Mean	7.37	3.76	6.03	4.50
	SD	1.57	1.84	1.73	1.83
Time 3	Mean	6.96	3.52	5.95	4.29
	SD	1.64	1.76	1.70	1.69
Time 4	Mean	7.30	3.35	5.59	4.35
	SD	1.63	2.01	1.90	1.81
Time 5	Mean	6.89	2.91	5.22	4.13
	SD	1.82	1.76	1.87	1.75
Time 6	Mean	6.95	3.12	5.07	4.33
	SD	1.64	1.78	1.78	1.69

Discussion

Our main aim was to study whether adolescents' social goals, typically examined as a combined score within a bi-dimensional circumplex model (two vectors or eight octants), could be captured using a more simplified measure of four individual factors; that is, the opposing dimensions of the original two segments found in the prior stated model (i.e., communal vs. separate and agentic vs. submissive). Due to the cross-loadings of the items in original version, the items were supposed to load more than one factor for social goals. Based on the results of the LCFA and the reliability analyses, this four-factor structure was confirmed, and therefore our first hypothesis concerning the ability to study social goals as separate factors instead of as composite aspects of the circumplex model (Trucco et al., 2014) was confirmed. With regard to internal reliability, the Cronbach's alpha values for all the social goals factors indicated at least adequate internal consistency. Due to simplifying the measure, several items from the original IGI-C were removed. Most of the goals' structures still remained the same and consistent with the previous literature (e.g., Ojanen et al. 2004). The remaining agency items relate to status, and the appearance of confidence and submissiveness refers to avoiding conflicting situations with peers and, in this way, relates to pleasing others. Communion in this study still refers to intimacy and the need for closeness and friendships. Contrary to previous studies, the remaining items of separation do not measure the distance from others (see Ojanen et al., 2005), but relate more to concealing thoughts and emotions and secrecy. Typically, individuals do not want to reveal much about themselves. This is a reasonable approach because feeling distance can be seen as opposite to the need for closeness and thus interrelates with the communal factor.

Second, in line with our hypothesis and a recent study by Trucco et al. (2014), the stability of each factor was found to be at least mediocre during the participants' three years in lower secondary school. We also hypothesised that the stability of social goals increases

during adolescence. However, this was found to be only partly true in that we did not find increased stability for most of the social goals during lower secondary school. For example, the stability of communal goals increased only between the fall and spring of the seventh grade, whereas the increased stability of agentic goals was observed during the three years of lower secondary school.

Third, we explored the concurrent and discriminant validity of the study's factors using the SAS as a criterion variable. In line with our hypothesis, stronger correlations within the social goal sum scores were mostly found compared to the sum scores of social goals and social anxiety, indicating acceptable concurrent and discriminant validity. Thus, social anxiety was partly associated with social goals, but it still measures a different matter. The higher correlations between separateness and social anxiety at all time points found in the study were in line with previous studies in which avoidance behaviour was found to be associated with social anxiety (Coplan et al., 2006). Those who suffer from social anxiety do not want to reveal too much about themselves because they are often afraid of negative evaluations. In the present study, the highest correlation was at the end of the ninth grade between separate goals and social anxiety, but significant correlations were found in all time points.

Instruments for analysing several of the goal dimensions longitudinally and in a comprehensive manner are lacking, both with regard to changes in and the stability of adolescents' social goals. Using an interpersonal circumplex model as a framework, this study illustrates a way to explore adolescents' social goals using a simplified SIG-A-measure (12 items) including four different dimensions (communal, separate, submissive and agentic). This study showed that social goals can be studied as separate factors rather than in opposition to one another. Also, Trucco et al. (2014) found in their study that the increases of agentic goals discovered in previous studies (see Ojanen et al. 2004) may be driven by a decrease in submissive goals and that agentic goals could in fact remain the same during adolescence. With the instrument and approach of the present study, this matter can be studied in more detail. It is possible for adolescents to simultaneously have several goals while being with peers. For example, when beginning a new school, individuals can lack the courage to be different from a group while still seeking their own place in new social networks. Adolescents may have agency goals and the desire to be heard, seen and admired, but they may also possess the desire to conform to others' expectations.

The examination of individual social goals is necessary because adolescence is a complex phase of physical, mental, social and contextual changes (Lord, Eccles & McCarthy, 1994). In adolescence, major individual progress also occurs, for example, in the domains of socio-cognitive and personality development (Aikins et al., 2005). Moreover, the complexity of an individual's group interactions and social behaviours increases during adolescence (Lerner & Steinberg, 2004), which can affect social goals by complicating them. In social transitions, adolescents meet new challenges, which may result in the adjustment of existing social goals (Zirkel, 1992; Urdan & Maehr, 1995). Adolescents' individual identity can still be unstable, and it is often determined as a group identity where the context can have an effect. Anxious adolescents who do not want to reveal so much about themselves may dream about being the subject of everyone's admiration, but generally do not want to reveal too much.

Also, the use of social media and the increasing availability of mobile devices have raised new challenges for the social relationships and social networks in school (e.g., Li, Hietajärvi, Palonen, Salmela-Aro & Hakkarainen, 2017). These developments may impact adolescents' social goals and ways to pursue them. This raises the need for new research tools that can be used in online social networks. In future studies, it would be useful to explore the associations between social goals and adolescents' actual behaviour, as these social goals are the expressions of personality. Also, the associations between social goals and socio-emotional well-being and adjustments to new schools should be studied. With this SIG-A measure, social goals can be examined individually, as associations can be different between socio-emotional aspects and various social goals. The correlation between separate goals and social anxiety was found as early as the beginning of lower secondary school. This was prior to the observed rise in symptoms of social anxiety at around age 14 found in previous studies (Ranta et al., 2012). This raises the question of whether this measure of social goals could be seen as a predictor of later social anxiety. In future studies, the associations between separate goals and social phobia should also be explored. Furthermore, research on the stability of social goals in adolescence could be extended to later adolescence and early adulthood. Further research is also needed on the emergence of social goals in different social contexts and changes to these contexts.

With this study's reduced measure of social goals, it is easier to collect information about interpersonal goals from students, for example, during their school days. The strength of this study lies in its longitudinal structure which included six measurement points throughout the lives of its participants in lower secondary school and enabled the study to examine the stability of these points over this time period. In addition, the participation rate was credibly high (85,2 %). However, some limitations of the study must be considered. The sample included only adolescents in one municipality in Finland, which may have decreased the generalisability of the findings. In addition, despite the high participation rate and the low dropout rate, dropouts must be considered because of the study's longitudinal structure. The study's measurements were validated only with this sample, so further replication studies with larger samples and a broader research scope are needed. Moreover, the measure should be tested with other datasets. In conclusion, the SIG-A measure offers a new, simplified research tool to explore adolescents' social goals in a more detailed manner.

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