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Improving Self-Esteem and Well-Being in Adolescence Through Improving Peer Acceptance

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Abstract

Social acceptance increases self-esteem and well-being. An important predictor of acceptance among peers is prosocial behavior, which is defined as any act with the goal of benefiting another person. This study examined whether prompting adolescents to perform prosocial behavior can improve peer acceptance and in turn increases self-esteem and well-being. Adolescents (n =118) were randomly assigned to either perform acts of kindness (experimental condition) or to describe their highlight of the day (control condition) on every school day for four weeks. Both at the start and at the end of the intervention, subjective peer acceptance, but not objective peer acceptance, was positively correlated with self-esteem and different indicators of well-being. Results showed that the intervention did not increase subjective and objective peer acceptance or self-esteem and well-being. Evidence was found of lower motivation and engagement with the intervention in the experimental condition compared to the control condition. Suggestions are made for how to improve the intervention in future studies.

Keywords: peer acceptance, self-esteem, well-being, sociometer theory, intervention, adolescents

Improving Self-Esteem and Well-Being in Adolescence Through Improving Peer Acceptance

Have you ever realized that the compliments you give to others have a major influence on the extent to which you are accepted by your peers? Giving a compliment is an example of prosocial behavior. Children and adolescents who show more prosocial behavior are more likely to be accepted by peers than children and adolescents who show less prosocial behavior (Caprara, Barbaranelli, Pastorelli, Bandura, & Zimbardo, 2000; Layous, Nelson, Oberle, Schonert-Reichl, & Lyubomirsky, 2012). The extent to which we are accepted by others across our development shapes our self-esteem (Cooley, 1902; Leary, Tambor, Terdal, & Downs, 1995). Self-esteem can be defined as the subjective evaluation of one's worth as a person (Rosenberg, 1965). High self-esteem is associated with greater life satisfaction, academic success, satisfaction in relationships, and mental and physical health indices (Baumeister, 1993; Orth, Robins, & Widaman, 2012; Trzesniewski et al., 2006). Low self-esteem, in turn, is linked to a greater level of negative emotions, such as sadness, anxiety and psychological mal-adjustment (Cutrona, 1982; Sowislo & Orth, 2013; Orth, Robins, & Roberts, 2008). In sum, greater self-esteem relates to greater well-being, and vice versa.

Correlational research has shown that prosocial behavior is positively related to peer acceptance (e.g. De Bruyn, & Van Den Boom, 2005; Newcomb, Bukowksi, & Pattee, 1993; Wentzel, & Caldwell, 1997). Further, laboratory studies have demonstrated that peer acceptance increases self-esteem (e.g. Buckley, Winkel, & Leary, 2004; Nezlek, Kowalski, Leary, Blevins, & Holgate, 1997; Thomaes et al., 2010). Interventions in real-life peer groups have shown that prompting prosocial behavior can increase acceptance among peers (Layous et al., 2012) and well-being (e.g. Aknin, Hamlin, & Dunn, 2012; Aknin, Dunn, & Norton, 2012; Dunn, Aknin & Norton, 2008; Layous et al., 2012; Lyubomirsky, Sheldon & Schkade, 2005; Weinstein & Ryan, 2010). However, it remains unanswered whether it is possible to

increase real-life acceptance through prompting prosocial behavior and subsequently increase self-esteem. This study examined whether improving peer acceptance in a real-world setting can increase individual adolescent's self-esteem and well-being. To increase peer acceptance, this study used an intervention that prompts adolescents to engage in prosocial behavior via performing kind acts. I tested whether improvements in subjective and objective peer acceptance increase self-esteem and well-being.

Self-esteem and the Sociometer theory

The idea that peer-acceptance influences self-esteem is found in sociometer theory (Leary et al., 1995). The theory posits that self-esteem is an internal mechanism that monitors how much other people approve of us (Leary & Baumeister, 2000; Leary et al., 1995). When others disapprove of us, our negative feelings about ourselves motivate us to take steps to solve the problem. In contrast, if someone is in a situation in which he/she functions well interpersonally, one's self-esteem goes up. Thus, according to this theoretical framework self-esteem works as a "gauge" that functions as a warning-system for rejection and exclusion (Leary et al., 1995). The changes in self-esteem are fundamental in the maintenance of approval from others and restoration in case we are rejected (Leary & Baumeister, 2000; Leary & Downs, 1995). To date ample empirical studies provide support for the main tenet of sociometer theory. Firstly, correlational studies in real-world settings have found relationships between peer-acceptance and self-esteem (e.g. Denissen, Penke, Schmitt, & van Aken, 2008; Srivastava & Beer, 2005). Secondly, laboratory studies have found support for the existence of a causal relationship between (manipulated) social feedback from others and self-esteem (e.g. Buckley, Winkel, & Leary, 2004; Nezlek, Kowalski, Leary, Blevins, & Holgate, 1997; Thomaes et al., 2010).

The internal monitor of self-esteem is thought to operate both in the long run and in the short term. Trait self-esteem, an enduring feeling of self-worth, reflects accumulations of

past appraisals and is found to be relatively stable over time (Cole, Jacquez, & Maschman, 2001; Felson & Zielinski, 1989; Gruenenfelder-Steiger, Harris, & Fend, 2016). State self-esteem, on the other hand, functions as a gauge to monitor momentary feelings of self-worth (Denissen et al., 2008; Gerber & Wheeler, 2009; Thomaes et al., 2010). Whereas trait self-esteem instills enduring mood, state self-esteem is highly sensitive to immediate positive or negative evaluations of others (Erol & Orth, 2011; Meier, Orth, Denissen, & Kühnel, 2011; Reitz, Motti-Stefanidi & Asendorpf, 2016). In sum, the sociometer is sensitive for continuing or gradual experience, as well as for sudden changes of social evaluation (Leary & MacDonald, 2003).

A period in which self-esteem is predominantly susceptible for these changes in social evaluation is adolescence. Adolescents are more sensitive to social acceptance from peers than children or adults (Brown & Larson, 2009). During this period, peer relationships are of rising significance (e.g. Allen & Land, 1999; Buhrmester, 1990). Even, acceptance from peers has been considered to be more critical to self-esteem than the acceptance of close friends and family in this developmental period (Harter, 2012; Leary & Baumeister, 2000). Adolescents' self-esteem has found to be relatively unstable (Harter, 1999, 2006). They aim to find out who they are and how others perceive them (Harter, 2012; Steinberg & Morris, 2001) and as a consequence, self-esteem undergoes substantial changes (Erol & Orth, 2011). Research argued that the ongoing positive or negative evaluations have a particular strong impact at this age (Harter, 2012). Accordingly, the pervasive drive to be accepted and valued by others, is more salient than during childhood or adulthood (Thomaes et al., 2010). Importantly, these peer relationships and therewith the level of self-esteem built across adolescence remain impactful throughout life (Gruenenfelder-Steiger et al., 2016).

In sum, given the empirical support for sociometer theory, and given what is known about the susceptible developmental phase of adolescence, it seems that adolescence provides

a window for influencing self-esteem both in the short and long run. However, so far no study has tried to do so in a real-life setting via increasing peer acceptance.

Objective vs. subjective peer-acceptance

Research has differentiated between objective (or actual) and subjective (or perceived) peer acceptance affecting self-esteem (Blackhart, Nelson, Knowles & Baumeister, 2009).

First, research suggests that people's self-esteem depends on how individuals are actually liked or disliked by others (e.g. Fend, 1998; Gruenenfelder-Steiger et al., 2016). Objective assessments from someone's actual peers reflects an important characteristic of peer relationships (Gruenenfelder-Steiger et al., 2016). Typically, to investigate objective peer acceptance, a sociometric procedure which instructs participants to select "liked most" classmates and "liked least" classmates is used (see Coie & Dodge, 1983). On this basis, a social preference score is inferred. This score has proven to effectively reflect the affective dimension of social integration by means of friendliness, sympathy and likability in his or her respective social group (Gruenenfelder-Steiger et al., 2016).

Second, changes in self-esteem have been found to be closely related to changes in the degree to which people perceive they are being included versus excluded by other people (Leary, Tambor, Terdal & Downs, 2009; Greene & Way, 2005; Gruenenfelder-Steiger, 2016). This is in line with findings of a recent longitudinal study that tested the sociometer theory in a real-life context and found support for a sociometer mechanism that was perceived consciously (Reitz et al., 2016). They examined the association between adolescents' self-esteem, their self-perceived acceptance among peers and objective social acceptance. Next to having found that objective peer acceptance and self-esteem were related, they found that the effect predicted by sociometer theory between objective peer acceptance and self-esteem is mediated by their self-perceived peer acceptance. More specifically, adolescents who are better liked by their peers have higher subjective feelings of peer acceptance, which fosters

increased self-esteem. At the same time, if people receive many likes objectively, but do not internalize the actual acceptance, it will likely not influence the way in which they assess themselves (Leary & Baumeister, 2000). To illustrate: If Ben, Laura and Susan like Katie, Katie is objectively accepted by her peers. However, if she herself does not perceive these attributions, she could still feel excluded, which, according to the sociometer theory lowers her self-esteem. Oppositely, if Ben, Laura and Susan do not nominate Katie as most-liked, but Katie still feels socially included, her self-esteem will be not be affected negatively. Subjective peer acceptance is retrieved from self-reported questionnaires as it reflects individuals' own feelings towards peer acceptance.

All in all, in addition to being liked by others (objective cues of liking), people need to *feel* liked in order to benefit from increased levels of self-esteem via the sociometer mechanism. It has been shown that objective and subjective peer acceptance are concurrently related to each other (Fend, 1998) and that both have found to be important predictors of self-esteem (Gruenenfelder-Steiger et al., 2016). This study examined both objective and subjective peer-acceptance to provide a comprehensive view on an individual's social acceptance.

Prosocial behavior and the present study

An important predictor of whether an adolescent is accepted by peers or not, is the degree to which she or he behaves prosocially. Prosocial behavior is defined as any act with the goal of benefiting another person and may include everyday kindnesses (e.g. helping with cooking), as well as larger efforts to improve the world (e.g. volunteering) (Wentzel & Caldwell, 1997). Adolescents who show more prosocial behavior are more likely to be accepted by peers than adolescents who show less prosocial behavior (Layous et al., 2012). Crucially, this link is bidirectional such that those who feel more accepted are more likely to

do things for others (Sandstrom & Cillessen, 2006) and those who are more likely to do things for others might gain the acceptance of their peers.

The current study focuses on the latter path. To date, intervention programs in school settings succeeded in encouraging students to perform prosocial behavior. Enacting kindness is a common tenet across these programs (Benfit, 2015). For example, a study by Lyubomirsky and colleagues (2005) instructed students to perform five kind acts each week over the course of six weeks. Their findings indicated that the students experienced increased levels of well-being. This is consistent with other kindness intervention research (e.g. Otake, Shimai, Tanaka-Matsumi, Otsui & Fredrickson, 2006). In addition to improving well-being, Layous and colleagues (2012) found that prompting children to perform kind acts leads to more peer acceptance. However, to date no studies have examined if self-esteem increases as a means of performing kind acts.

This study experimentally tested the sociometer theory in a real-life setting. Adolescents participated in an intervention program designed to explore whether doing good for others (versus naming the highlight of the day) over four weeks would simultaneously promote positive peer acceptance and increase self-esteem and well-being. First, by prompting prosocial behavior, the current study aims to increase objective and subjective peer acceptance. Second, as a result, based on sociometer theory, it is expected that self-esteem increases. Third, as self-esteem is concurrently related to well-being and at the same time prosocial activities and peer acceptance have found to be positively related to well-being (e.g. Buchanan & Bardi, 2010; Oberle, Schonert-Reichl, & Thomson, 2010; Otake et al., 2006), it is expected that levels of well-being increase. Studies have found that recalling positive events via reporting a highlight of the day increase self-esteem and well-being (Shankland & Rosset, 2017). Therefore, I hypothesize that participants in both conditions show increases in levels of self-esteem and well-being. However, as the participants in the control condition are

not expected to display increases in prosocial behavior, they are not expected to show increases in levels of peer-acceptance.

As prosocial activities have ramifications not only for the individual, but also for the community at large, the activity may have ripple effects beyond increasing the peer acceptance and well-being of the doers. Therefore, it was postulated that the level of well-being after the intervention is higher among all participants than at the beginning of the intervention.

Method

Participants

For this study, I recruited pupils in secondary schools in medium-sized cities in the southwest of the Netherlands. Participants were 142 adolescents (55.6% female) who ranged from 14-18 years (M = 16.08, SD = .77) in three nested year layers across two schools (see Table 1 for the distribution). Most participants were ethnic Dutch (93.7%); others mainly had mixed cultural or ethnical origins. 78.9% of the biological fathers and 75.4% of the biological mothers were born in the Netherlands. Of the remaining, most (93%) were born in a country within Europe. The students were all part of the college-preparatory academic track (VWO) representing the upper 17% of the Dutch students in higher education (CBS, 2018).

Table 1

Number of participants in each group (n)

	T1				T2			
	School 1		School 2	Total	School 1		School 2	Total
	YL 1	YL 2	YL 3		YL 1	YL 2	YL 3	
n Total	35	14	93	142	32	11	75	118
n “Highlight”	17	7	46	70	17	6	36	59
n “Kind acts”	18	7	47	72	15	5	39	59

YL = Year Layer.

Of the 118 participants that had completed the study by participating in the post-measurement, 59 were part of the "kind acts" group, (50.8% female, M_{age} = 16.00, *SD* = .76), and 59 were part of the "highlight" group, (59.3% female, M_{age} = 16.17, *SD* = .77).

The intervention and procedure

The design of intervention is based upon a prosocial intervention from Layous and colleagues (2012). The research has been executed according to the guidelines of the Commission Ethical Psychology (CEP) of the Faculty of Social and Organizational Psychology Sciences from the Leiden University (CEP18-0216/94). The study was conducted in the participants' schools, making sure that the real-life setting was preserved.

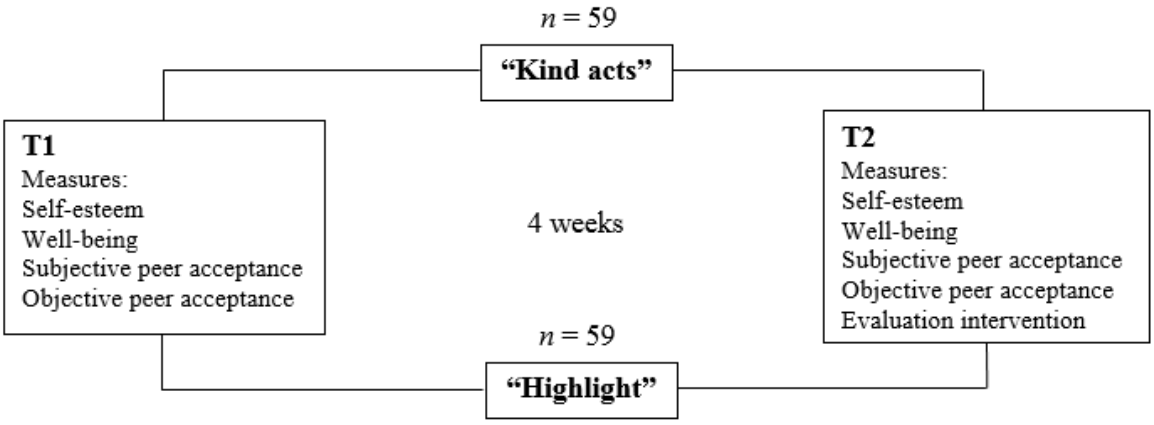

Figure 1. The intervention

Students signed an informed consent form at the start of the study. Before the study took place, parental consent forms were obtained for all students aged 12-16.

In the first session (T1), students were told the study was about social relationships and well-being. The students were instructed that their daily assignment would be introduced via e-mail that they would receive in the afternoon the same day. Students were explicitly asked not to discuss the assignment with any of the classmates. After making sure everything was clear, the questionnaires were completed via a computer or smart phone.

Then participants that had completed the questionnaires were randomly assigned to one of the two conditions. Over the course of four weeks, students were instructed to either perform at least one act of kindness ("kind acts") for a classmate or describe their highlight of the day on all schooldays of the week. Examples of kind acts included; "helped a classmate with homework" and "gave my classmate a compliment". Examples of highlights of the day were; "received a high grade for my physics test" and "enjoyed lunch in the sun with friends". Throughout intervention, participants in the experimental condition reported how many kind acts they performed. The participants of the control-group reported each day what their highlight of the day was. The reporting was retrieved through a personal link that was sent to the student by e-mail every afternoon of the school day and every morning the day after as a reminder. Although, the control condition did not act upon changes in peer acceptance, it would focus upon increasing self-esteem and well-being through a reflection exercise. Previous research has shown that paying conscious attention to positive events (naming the highlight of the day) is related to well-being outcomes such as positive affect (Quoidbach, Berry, Hansenne, & Mikolajczak, 2010; Emmons & McCullough, 2003; Lyubomirsky, Sousa, & Dickerhoof, 2006). Also, reflection on positive events may lead to a sense of perspective and self-insight, which may translate in a more positive self-image and higher self-esteem (Bryant, Smart, & King, 2005).

During the second session, at the end of the four-week period, the students were asked to fill out the questionnaires again. Subsequently, participants were debriefed by explaining the aim of the intervention and discussed how they experienced the intervention. For participation, the adolescents received a small gift and a certificate stating proof of participation. Two classrooms received money for a lunch for the whole class in a raffle, which was part of the study of which the results are not described in this thesis.

Measures

Self-esteem. To assess self-esteem the Dutch version of the Rosenberg Self-Esteem Scale (Franck, De Raedt, Barbez & Rosseel, 2008; Rosenberg, 1965) was used. The students rated how much they agreed with 10 items (e.g., "On the whole I am satisfied with myself") on a 4-point scale ranging from (1) strongly disagree to (4) strongly agree. Internal consistency of the scale proved to be good (Cronbach's alpha's at T1 = .86 and T2 = .88) and therefore consistent with previous studies the average was calculated for both the pre- and post-measurement (negative items were reversed).

Well-being. Life satisfaction, happiness, positive affect and negative affect have found to be important indicators of well-being (Diener, 1984; Emmons & Diener, 1985; Lyubomirsky & Lepper, 1999). Studying them together provides a comprehensive view on well-being. Therefore, in the current research, the following self-reported measures were used to assess well-being.

Students could respond to the five statements of the Dutch translation of the Satisfaction With Life Scale (SWLS-NL; Arrindell, Heesink, & Feij, 1999; SWLS; Diener, Emmons, Larsen & Griffin, 1985; e.g. "In most ways my life is close to my ideal") using a seven-point scale from 1 (strongly disagree) to 7 (strongly agree). Internal consistency of the scale proved to be good (Cronbach's alpha's at T1 = .77 and T2 = .77) and therefore consistent with previous studies the average was calculated for both the pre- and post-measurement (negative items were reversed).

A translation of the Subjective Happiness Scale *(*SHS; Lyubomirsky & Lepper, 1999;) was used to assess happiness and consisted of 4 items that were rated from 1 to 7 (e.g. "In general, I consider myself as (not) a very happen person"). Internal consistency of the scale proved to be good (Cronbach's alpha's at T1 = .83 and T2 = .83) and therefore consistent with

previous studies the average was calculated for both the pre- and post-measurement (negative items were reversed).

Positive and negative affect were measured via the Dutch version of the Positive and Negative affect scale (PANAS-NL; Peeters, Ponds & Vermeeren, 1996; PANAS; Watson, Clark, & Tellegen, 1988; example question: "In general, how often do you feel interested"). Normally, the PANAS measures state well-being, reflecting how someone feels at that certain moment or over the past week. In the current study, I adapted the questionnaire so that it measured well-being over a longer time. Students were asked to rate the extent to which they experience each particular positive (10 items) or negative emotion (10 items) in general. The 5-point scale ranged from (1) very slightly or not at all to (5) very much. Internal consistency of the scale proved to be good for both scales (Cronbach's alpha's for positive affect at T1 = .77 and T2 = .80; and for negative affect at T1 = .80 and T2 =.85) and therefore consistent with previous studies responses were summed for both the pre- and post-measurement.

Subjective peer acceptance. Subjective peer acceptance was assessed by a Dutch translation of the six-item subjective approval scale described by Gruenenfelder-Steiger and colleagues (2016). In the current study, the dichotomous scale was adapted to a 5-point scale (1 = totally disagree, 5 = totally agree). Examples of items were: "I'm pretty respected among my classmates" and "No matter what I do, somehow my classmates just do not like me very much" (Gruenenfelder-Steiger et al., 2016). Internal consistency of the scale proved to be good (Cronbach's alpha's at T1 = .75 and T2 = .75) and therefore consistent with previous studies responses were summed for both the pre- and post-measurement (negative items were reversed).

Objective peer acceptance. In addition to the self-evaluative measures, I measured objective peer acceptance using peer nominations. The participants filled out a peer-nomination procedure (unlimited nominations), in which participants were asked to nominate

the peers who they liked most and liked least on a list with all classmates of their year layer (Coie & Dodge, 1983). The number of likes and dislikes were calculated for each participant. As sociometric nominations are relative to the size of the group in which they were assessed, I standardized raw scores on the classroom size (see for procedure Coie, Dodge, & Coppotelli, 1982). A standardized average social preference score was computed for the pre- and post-measurement by subtracting the standardized number of dislikes from the standardized score of likes.

Evaluation questions (only at T2). In order to evaluate implementation of the intervention, students were asked to fill out questions related to their experience towards the implementation and adherence to the study. The questions demonstrate students' motivation and their feelings towards usefulness of the study (see Appendix A for the specific questions).

Statistical analyses

A Spearman's rank-order correlation was run to assess relationships between the variables. To test the central prediction that the intervention positively influenced peer approval, self-esteem and well-being I conducted repeated measures (RM) multivariate analyses of variance (MANOVA). Furthermore, implementation data were analyzed with t-tests and ANOVA's.

Results

To examine whether the intervention leads to an increase in peer acceptance, self-esteem and well-being, data were retrieved. Missing data were because 24 students were not present at the post-measurement and due to a technical mistake, 32 students did not respond to the "likes most" peer-nominations at the pre- and post-measurement. The means and standard deviations of the measures at pre- and post-measurement are presented in Table 3. Differences between initial responses of the 142 participants in the pre-measurement versus the 118 participants in the post-measurement were examined. The 118 students that returned to the

post-intervention measurement did not differ on any study variable from students compared to those who were not present during T2 (see Table 3).

Self-esteem and well-being

Positive correlations were found between self-esteem and well-being, all *rs* > .22, all *ps* < .01 (see Table 2). 19%, 44%, 20% and 29% of the variance of self-esteem could be explained by satisfaction with life, subjective happiness, positive affect and negative affect respectively, and vice versa. Additionally, strong correlations were found between the stabilities of self-esteem and well-being, *rs* > .71, *ps* < .01 (see Table 2). 67% of the variance of self-esteem on the post-measurement could be explained by self-esteem on the pre-measurement.

To examine whether self-esteem and well-being increased as a function of the intervention, I performed a repeated measures MANOVA with time point (2 levels: pre-intervention and post-intervention) as within-subjects factor for the composite score of the self-esteem and well-being measures (5 levels: self-esteem, satisfaction with life, subjective happiness, positive affect and negative affect) and condition (2 levels: "kind acts" vs. "highlight") as a between-subjects factor. No significant main effects of time, condition and well-being and self-esteem measures ($F(1, 116) = .45$, $p = .50$; $F(1, 116) = .05$, $p = .82$; $F(4, 113) = .08$, $p = .99$, respectively) were found. Similarly, there were no significant two-way interaction effects of time and condition, $F(1, 116) = 1.59$, $p = .21$. The other interaction effects were not significant, all *F*s < 1.64, all *p*s > .17. Together these results indicate that self-esteem and well-being did not increase as a function of the intervention.

Table 2

Correlations Between Study Variables Within and Across Waves.

	Time 1 (pre-intervention)							Time 2 (post-intervention)						
Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Self-esteem	--													
2. Satisfaction with life	.52[a] ***	--												
3. Subjective Happiness	.66[a] ***	.63[a] ***	--											
4. Positive affect	.45[a] ***	.32[a] ***	.48[a] ***	--										
5. Negative affect	-.54[a] ***	-.44[a] ***	-.51[a] ***	-.22[a] **	--									
6. Subjective approval	.39[a] ***	.38[a] ***	.36[a] ***	.30[a] ***	-.38[a] ***	---								
7. Social Preference	.19[c]	.25[c] *	.23[c] *	.12[c]	-.12[c]	.25[c] **	--							
8. Self-esteem	*.82[b]* ***	.44[b] ***	.61[b] ***	.54[b] ***	-.54[b] ***	.43[b] ***	.08[d]	---						
9. Satisfaction with life	.47[b] ***	*.71[b]* ***	.67[b] ***	.36[b] ***	-.35[b] ***	.25[b] **	.12[b]	.47[b] ***	---					
10. Subjective Happiness	.64[b] ***	.56[b] ***	*.78[b]* ***	.48[b] ***	-.51[b] ***	.35[b] ***	.14[d]	.66[b] ***	.68[b] ***	---				
11. Positive affect	.51[b] ***	.37[b] ***	.51[b] ***	*.79[b]* ***	-.32[b] ***	.39[b] ***	.08[d]	.57[b] ***	.42[b] ***	.58[b] ***	---			
12. Negative affect	-.56[b] ***	-.33[b] ***	-.43[b] ***	-.34[b] ***	*.80[b]* ***	-.23[b] *	.01[b] **	-.59[b] ***	-.32[b] ***	-.52[b] ***	-.40[b] ***	---		
13. Subjective approval	.36[b] ***	.37[b] ***	.36[b] ***	.31[b] **	-.29[b] **	*.78[b]* ***	.17[b]	.42[b] ***	.33[b] ***	.42[b] ***	.38[b] ***	-.25[b] ***	---	
14. Social preference	.10[d]	.12[d]	.16[d]	.17[d]	-.16[d]	.23[d] *	*.81[d]* ***	.11[d]	.13[d]	.15[d]	.13[d]	-.06[d]	.23[d] *	--

Note: Stabilities are in italic. * $p < .05$. ** $p < .01$. *** $p < .001$. [a] $n = 142$, [b] $n = 118$, [c] $n = 107$, [d] $n=86$.

Peer acceptance

No significant to low positive correlations were found between subjective peer acceptance and objective peer acceptance, *rs* > .17 < .25, *ps* < .05 (see Table 2). Objective peer acceptance correlated weakly positive with satisfaction with life and subjective happiness on the pre-measurement (see Table 2). The other associations between objective peer acceptance and self-esteem and the different well-being measures on the pre- and post-measurement were not significant, *r*s < .19, *p*s > .05. In contrast, the results show moderate positive associations between subjective peer acceptance and self-esteem and well-being, *r*s > .29 < .42, *p*s <.01 (see Table 2). On average 12% of the variance of self-esteem and the different well-being, scales could be explained by subjective peer approval. Additionally, strong correlations between the stabilities of subjective approval and social preference were found (see Table 2).

To test the effects of my intervention on peer acceptance, a repeated measures MANOVA with time point (2 levels: pre-intervention and post-intervention) as within-subjects factor for the composite scores of objective peer acceptance and subjective peer acceptance measures (2 levels: social preference and subjective approval) and condition (2 levels: “kind acts” vs. “highlight”) as a between-subjects factor was conducted. The analysis revealed no significant main effects for time, $F(1, 84) = .58$, $p = .45$, condition, $F(1, 84) = .51$, $p = .48$, and the measures, $F(1, 84) = .01$, $p = .94$. The other interaction effects were not significant, all *Fs* < .74, all *ps* > .39. The results indicate that objective peer acceptance and subjective peer acceptance did not increase for the students in the “kind acts” condition, nor for the students in the “highlight” condition.

Table 3

Descriptive Statistics of the Measures and Results of the Repeated Measures ANOVA's.

	T1 (n = 142)	T1 (n = 118)	T2 (n = 118)	Time		Time * Condition	
				F		F	
Variable	M (SD)	M (SD)	M (SD)	(1, 116)	p value	(1, 116)	p value
Self-esteem							
Total	1.90 (.46)	1.91 (.48)	1.90 (.48)	.09	.77	1.24	.27
"Kind acts"		1.93 (.51)	1.89 (.53)				
"Highlight"		1.88 (.44)	1.91 (.43)				
Satisfaction With Life Scale							
Total	23.30 (5.95)	23.46 (6.14)	24.01 (5.45)	1.78	.19	.10	.76
"Kind acts"		23.10 (5.86)	23.78 (5.58)				
"Highlight"		23.81 (6.44)	24.24 (5.36)				
Subjective Happiness Scale							
Total	4.59 (1.20)	4.58 (1.25)	4.61 (1.15)	.16	.69	.38	.27
"Kind acts"		4.67 (1.24)	4.61 (1.22)				
"Highlight"		4.49 (1.25)	4.60 (1.10)				
Positive Affect							
Total	34.96 (5.37)	34.72 (5.44)	34.71 (5.77)	.00	.98	1.80	.18
"Kind acts"		34.19 (5.86)	33.73 (6.42)				
"Highlight"		35.25 (4.98)	35.69 (4.90)				
Negative Affect							
Total	23.06 (6.58)	23.01 (6.65)	23.00 (7.07)	.00	.98	.82	.37
"Kind acts"		22.61 (6.07)	22.95 (5.98)				
"Highlight"		23.41 (7.21)	23.05 (8.07)				
Subjective Peer Approval							
Total	20.52 (2.90)	3.80 (.60)	3.83 (.58)	.78	.38	.64	.43
"Kind acts"		3.75 (.58)	3.75 (.57)				
"Highlight"		3.85 (.63)	3.91 (.59)				
Social Preference (Z-score)							
Total	0.00 (1.00)[b]	-.02 (.97)[c]	.00 (1.00)[c]	.18[d]	.67	.03[d]	.86
"Kind acts"		-.03 (1.09)	-.01 (1.18)				
"Highlight"		-.02 (.84)	.01 (.79)				

Note: the repeated measures ANOVA shows no significant effects on any of the variables. T1 = pre-intervention, T2 = post-intervention. * $p < .01$, ** $p < .001$. [b] $n = 107$, [c] $n = 86$, [d] is $F(1, 84)$ instead of $F(1, 116)$.

Implementation of the intervention

As this intervention studies the possibility to improve self-esteem and well-being among adolescents in a real-life setting, I examined adherence to the instructions of the intervention. A t-test revealed that participants in the "highlight" condition (*M* number of days responded = 13.85 out of 20, *SD* = 6.77) filled out the daily diary significantly more often than participants in the "kind acts" condition (*M* number of days responded = 9.98 out of 20, *SD* = 6.49, t (116) = 3.17, $p < .01$). Students in the "kind acts" condition performed 9.02 (*SD* = 7.33) kind acts on average. Out of the minimum of 20 kind acts they were asked to perform, this could be regarded as a low-to-moderate number.

I additionally examined subjective evaluation of the intervention (see Figure 2). Motivation dropped significantly each consecutive week for both conditions, all *ts* > 4.95, all *p*s < .01 (see Figure 2). Independent t-tests revealed that students in the "highlight" condition significantly liked their exercise better than the students in the "kind acts" condition $t(116) = 2.49$, $p < .05$. Further, students in the highlight condition were more motivated by the daily e-mails than the students in the kind acts condition $t(116) = 3.65$, $p < .01$. No significant differences were reported on the other items, all *t*s < 1.79, all *p*s > .08 (see Figure 3).

Further, I assessed whether there was a difference between conditions concerning subjective appreciation and mood. Participants in the kind acts condition (*M* = 2.46, *SD* = .92) reported that their classmates appreciated them more than those in the highlight condition (*M* = 1.93, SD = 1.00), $t(116) = 2.98$, $p < .01$. No significant differences were reported on the other items, *t*s < 1.33, all *p*s > .17. (see Figure 4).

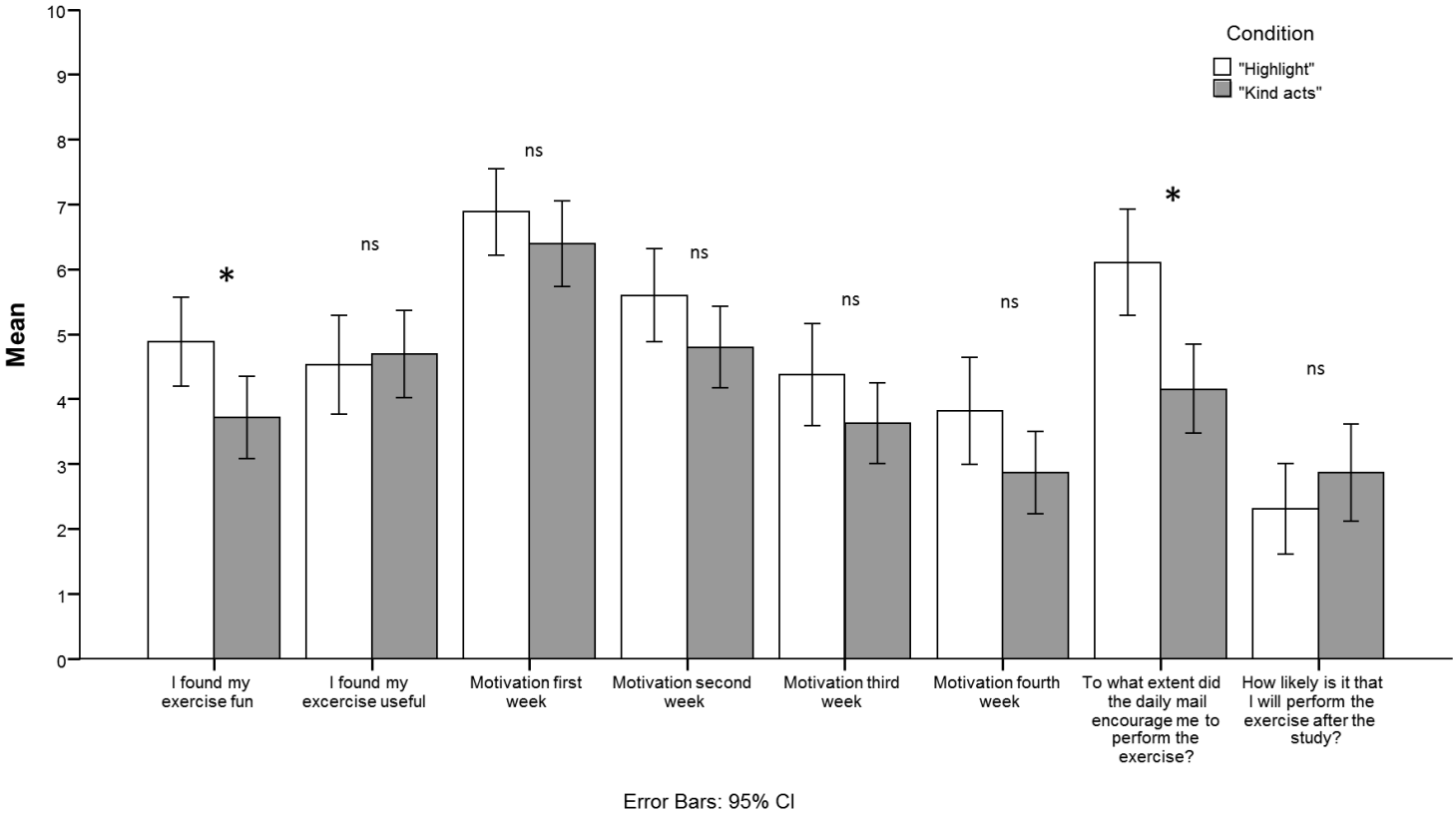

Figure 3. Motivation during the intervention. * $p < .001$.

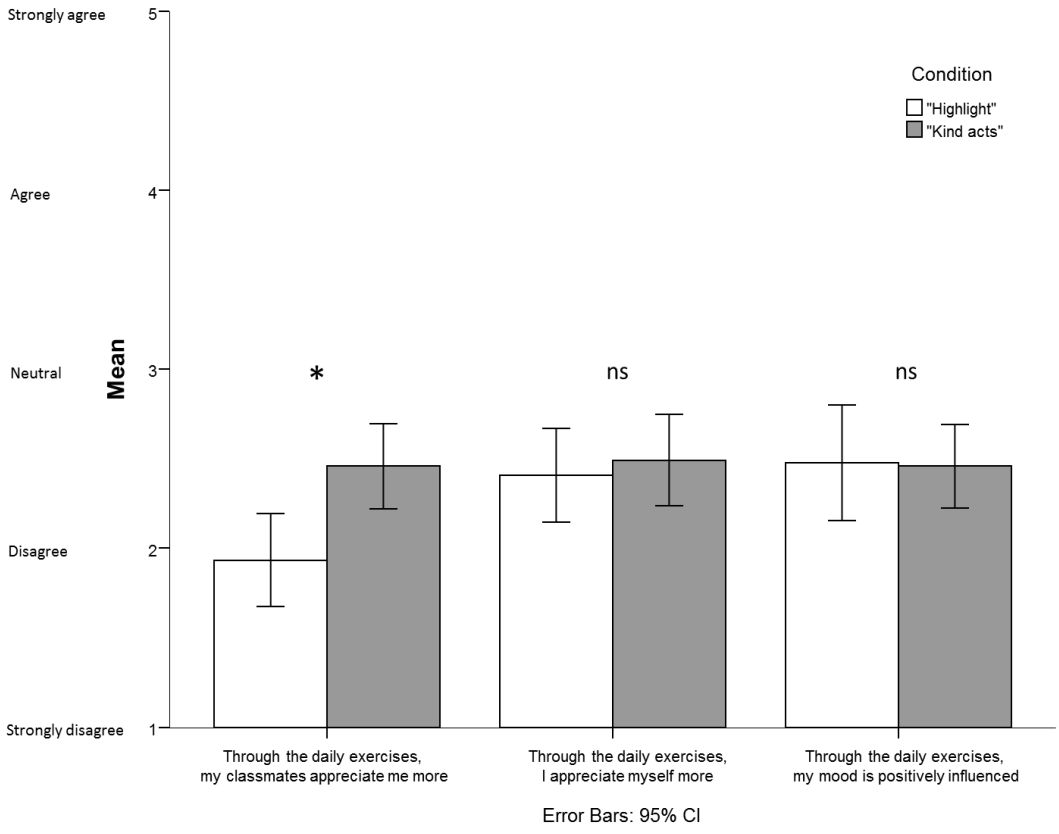

Figure 4. Influence on appreciation and mood. * $p < .001$.

The direct relation between subjective motivation and objective participation was examined (see Table 5). First, subjective reporting of how many days the participants did the daily assignment was strongly associated with the actual amount of kinds acts performed and the amount of days filled out (see Table 5). Second, the results show significant correlations between the amount of days students filled out the daily diary and the subjective experience of fun, usefulness, weekly motivation and the motivation by daily e-mail (see Table 5). Third, weekly motivation, motivation by daily e-mail and continuation of the intervention is positively associated with the amount of kind acts performed (see Table 5). As motivation dropped (see Figure 3) and significant relations between motivation and amount of kind acts were found, it can be concluded that the amount of kind acts decreased during the intervention.

To examine if the amount of days filled out and amount of kind acts performed had a direct effect on differences in peer acceptance, self-esteem and well-being, a correlation was run. The results revealed no significant associations, all rs < .12, all ps > .21.

Table 5

Spearman's rho Correlations of the subjective motivation and objective participation (n = 118)

	Amount of kind acts performed[a]	**Amount of days filled out**
How many times did you do your daily assignment?	-.82***	-.83***
I found my exercise fun	.21	.36***
I found my exercise useful	.08	.21*
Through the daily exercises, my classmates appreciate me more	-.01	-.05
Through the daily exercises, I appreciate myself more	.05	.14
Through the daily exercises, my mood is positively influenced	.02	.15
Motivation first week	.34**	.32***
Motivation second week	.51***	.59***
Motivation third week	.44***	.63***
Motivation fourth week	.33*	.60***
The daily e-mail motivated me to perform the exercise daily	.42**	.55***
How likely is it that you will perform the daily exercises after the intervention?	.27*	.17

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. [a] For "kind acts" condition only, $n = 59$.

Discussion

This study tested whether an intervention could increase self-esteem and well-being through increasing peer acceptance in a real-life setting. Positive associations were found between indices of subjective peer acceptance, self-esteem, and well-being. The intervention did not lead to changes in self-esteem and well-being or in peer acceptance. Although the study provides support for a relation between the core components of the sociometer theory, modifications to the intervention need to be made in order to successfully improve adolescents' self-esteem and well-being.

My results replicate previous findings that subjective peer acceptance and well-being are positively related (e.g. Du, King, & Chi, 2017; Leary, 1990; Oberle et al., 2010). However, results did not replicate findings reflecting associations with objective peer acceptance and well-being (e.g. Layous et al., 2010). Further, the results support predictions from sociometer theory that self-esteem is associated with subjective peer acceptance (Leary, 1990; Leary & Downs, 1995; Srivastava & Beer, 2005). Crucially, objective peer acceptance was not significantly related to self-esteem. These findings are consistent with former research providing support for perceived feelings of likes and dislikes instead of actual likes and dislikes which influences self-esteem (Leary & Downs, 1995; Reitz et al., 2016). Subsequently, it has been suggested that objective acceptance goes through a "filter" of subjectively perceived peer acceptance (Reitz et al., 2016). In terms of the current study, if an individual receives more nominations, these can only amount to effects if this individual also perceives them. In line with previous research, the current research suggests that how one perceives others are accepting him or her serves as a necessary link in the chain between objective peer acceptance and self-esteem and well-being (Leary, 2000; Reitz et al., 2016; Du et al., 2017).

Additionally, my results replicate previous findings, showing that self-esteem and well-being are positively associated with each other (e.g. Rosenberg, 1965; Leary & Baumeister, 2000; Du et al., 2017). The strong correlations between stabilities of self-esteem and well-being provide support for robustness of the constructs. This indicates that individuals may optimize their well-being over time when they are able to maintain high levels of self-esteem, and vice versa.

Lastly, the intervention did not lead to changes in peer acceptance and well-being. This is in contrast to the findings from Layous and colleagues (2012). Furthermore, no increases in self-esteem were found. There may be several reasons why the intervention did not lead to the expected changes. One reason may be that the minimalistic nature of the intervention may have contributed to a lack of meaningful effects, as will be discussed below.

Increases in peer acceptance, self-esteem and well-being

As the students had been in school together for five years before entering the experiment, it may be that the social relations had stabilized to a degree that is hard to change with a single intervention. To illustrate: If John and Harry did not hang around for five years and Harry did not nominate John as “liked most” nor as “liked least” before the intervention, there is a low chance that Harry will nominate John after four weeks of intervention on any of these measures. Possibly, only students that did not receive a lot of attention before (neglected) might benefit from such an intervention, not the ones that are disliked very much already and also not the ones that are liked a lot already. Research postulates that rejected status is more stable than neglected status over time or situations (Asher & Coie, 2000). It is rare for individuals with rejected status to become well-accepted (Coie & Dodge, 1985). To increase peer-acceptance for someone who has been rejected for a long time, it takes a lot of effort. In terms of the current study, it seems likely that the previous five years of relationship building have become so deeply ingrained in the social network structure of the class, that it

has become difficult to change in a short timeframe. Therefore, a kind acts intervention like the one used in this study would probably be more fruitful in groups of adolescents who have not known each other for a long time, where relationships are still in flux.

Besides the theorized sociometer, other important indicators predicting self-esteem may have contributed to the lack of effects. An example is academic achievement (Tremblay, Inman, & Willms, 2000). Among individuals driven by strong personal goals and motivations, social inclusion is a much weaker predictor of self-esteem (Guay, Delisle, & Fernet, 2008). As the intervention took place within the highest academic track in the Dutch high-school system (VWO/gymnasium), it could be argued that academic achievement, beyond social relationships, plays a (more) important role in self-esteem development in this sample. Therewith as a consequence, observations done within this sample may not be generalizable to the whole population.

Although, I explicitly asked the students to be discrete about their exercise, students confessed they had not kept their exercise for secret. Consequently, students knew that some of the participants were instructed to perform kind acts. Because of this, it is possible that the kind acts did not seem genuine. Research showed that participants who deliberately chose to perform a kind act showed bigger gains in well-being than participants who did not deliberately chose to do so (Lyubomirsky & Layous, 2013). In line with these findings, it may be that genuine acts of kindness elicit more positive reactions than when acts of kindness are interpreted not to be genuine. It is possible that more naturally occurring forms of positive social interaction and prosocial behavior, instead of explicit instruction to act kindly lead to changes in peer acceptance.

The intervention. The extent to which an intervention successfully contributes to changing behavior strongly depends on the intervention itself. For example, successful contribution may depend on the way instructions are given and the participants'

understanding (Sin & Lyobormirsky, 2009). In the current study, students received their instructions via an e-mail after an introductory session in class. Due to the randomization within classes, no full explanation could be given in real-life. It could be that the students did not understand the exercise properly and ambiguity could have prevented them from acting in the right way.

In the current study, no reference towards effort was provided. Research has shown that the more effort students put into their kind act, the more beneficial it is for increasing well-being (Lyubomirsky & Layous, 2013). It is possible that the effort required for, and with that the quality of, the kind acts in this intervention was not good enough in order to increase peer acceptance in this short timeframe.

Additionally, the dosage of kind acts could be elaborated upon. In the current intervention, I deliberately asked students to perform at least one kind act a day, to not lose the students as a result of "too much being asked". However, a dose-effect of amount of acts of kindness was highlighted by Lyubomirsky and Layous (2013), having found that one act per day did not increase well-being whereas five acts of kindness in the same day did increase well-being (Shankland & Rosset, 2016). This might indicate that saliency through frequency of kind acts is of importance in order to receive peer-acceptance.

Furthermore, research provides support for a variation in kind acts (instead of doing the same every day) (Lyubomirsky & Layous, 2013). In this study, students could for example suffice by giving a compliment every day. However, if variation in kind acts would have been supported more explicitly, this could possibly have elicited a positive effect. All in all, for further research it is recommended to extend information on effort, dosage, and variation of the kind act in the e-mail or during in-class instruction, so that participants better understand what is expected from them.

Additionally, it is likely that the intervention would have worked better if students would have been able to perform kind acts towards their classmates in a smaller setting (such as in the research from Gruenenfelder-Steiger et al. (2016) and Layous et al. (2012)). It would have been likely that the bidirectional effect of prosocial behavior had better shown off and well-being in the overall class would have increased.

Another perspective that may be fruitful for evaluating the intervention is that adolescents in this era have become more sensitive to how their peers evaluate them on social media (Valkenburg & Peter, 2011). Students make use of their mobile phone for many hours throughout the day, far beyond the time they spend with each other in the classroom. The interplay of both the digital world and real-life might have an overshadowing effect that we are not aware of within the scope of the current research. This should be taken into account in future studies on this topic.

Motivation of the participants

Another reason for a lack of meaningful effects of the intervention may be assigned to motivation and participation of the participants. Overall, it can be concluded that the participants in the control condition were more motivated to perform their daily task than participants in the experimental condition. Results indicated that students who were more motivated for their exercise were more likely to perform more kind acts than students who were less motivated for their exercise, and vice versa. This is supported by studies showing that completion of the activity is predicted by the extent to which participants report enjoying the activity (Schueller, 2010). It can be concluded that the execution of kind acts strongly depends on motivation. Crucially, it is the act of kindness that most likely increases peer acceptance (Layous et al., 2012). If the act is not performed, it is likely that the intervention does not elicit results. Furthermore, the fact that motivation further decreases each week of the intervention indicates that participants lost their interest and motivation along the way. In

what follows, I will discuss several causes that may underlie these findings. On that basis, suggestions are provided for how to sustain motivation for the execution of kind acts over the course of four weeks.

Self-determination theory (Deci & Ryan, 2000) suggests that motivation requires three main inputs for the student. They must perceive possibility of success (competence), a sense of control over the process or outcome (autonomy) and the experience of being connected to others (relatedness). It may be that not all factors were fully present in the current study, which might explain decreased motivation.

First, the intervention did not provide explicit feedback to what extent the student succeeded in performing the kind act. Students have found to be more motivated in interventions when they understand how much they gain from positive activities (Lyubomirsky & Layous, 2013).

Second, the intervention encouraged students to perform prosocial behavior, which can be associated with controlled motivation. Controlled behaviors arise from a desire to obey demands (Weinstein & Ryan, 2010). The students of the current study may have perceived the instruction of performing kind acts as obeying a demand. Extrinsic motives for volunteering, such as obeying demands, are negatively associated with volunteer satisfaction (Weinstein & Ryan, 2010). It is possible that the students in the current study did not experience this control over the process and outcome. Because of this, they might not have felt satisfied while performing the act, which resulted in decreased motivation each week.

Third, it might be that the students did not experience enough support from their social network (other students and teachers). Students who are more supported have shown to be more motivated to practice prosocial behavior over a longer course (Lyubomirsky & Layous, 2013).

To act upon the above-mentioned drivers of motivation, several studies have found planning to be of importance (Buchanan & Bardi, 2010; Lyubomirsky et al., 2005; Nelson et al., 2012; Sheldon, Boehm, & Lyubomirsky, 2012). A framework which incorporates planning is suggested for motivating students in classroom settings (Binfet, 2015). In short, students should be encouraged to (1) generate lists of individuals in need of kindness (increasing autonomy), (2) think of a suitable act and plan details of execution, (3) execute the act, and finally (4) reflect upon their kind act (increasing competence). In addition, it is encouraged to involve teachers more closely (increasing relatedness) to complement the current intervention and framework in order to boost students' sustained motivation.

Limitations and recommendations for further research

Several limitations should be interpreted in light of the methodological aspects of the study.

First, the sample size was relatively low (compared to the study of Layous et al., 2012, for example). Small sample size required to randomize within classrooms – making it harder to detect effects compared to a situation where we would have had 20 classrooms, 10 experimental and 10 control. Research suggests that received help stimulates reciprocity, leading to possible prosocial behavior in the classroom affecting the control condition (Layous et al., 2012). In further research it is suggested to have a bigger sample size in which both conditions could be divided across classrooms, so that contamination effects can be limited.

Second, due to the way in which the Dutch school system is organized, it was not possible to do the intervention in set classes (compared to the study from Gruenfelder-Steiger et al., 2016). Consequently, a major disadvantage to the sociometric procedure was apparent. Specifically, at one school, the participants could nominate more than 90 students as liked or disliked, whereas the students from the other school could only nominate 40 students.

Research confronts difficulties when comparing groups of different sizes (Connolly, 1983). Further, research provides evidence that when people can choose more students, a lower relative amount of likes and dislikes is being given than if less students could be selected (Connolly, 1983). This could have affected the raw objective peer nominations and as a result the objective peer acceptance measure. Therefore, in future studies it is suggested to test the intervention in set classes.

Third, another limitation may be the way self-esteem was measured. The Rosenberg scale of self-esteem represents trait self-esteem and not state self-esteem (Rosenberg, 1965). As previously discussed, self-esteem is sensitive to sudden and gradual changes in social development (Reitz et al., 2016). It could be argued that the current study would only exhibit sudden changes as the study had a relatively short timeframe (four weeks). A "honeymoon" effect, meaning that the experience of increased peer acceptance is only influenced for a short period after the kind-act action, could be a reason that no gradual changes in trait self-esteem were detected. The Rosenberg scale of self-esteem is sometimes used as a measure for state self-esteem if it is measured across more time points (e.g. in the study of Thomaes et al., 2010). However, it would be useful to add a specific state self-esteem questionnaire (such as the State Self-Esteem Scale (SSES) from Heatherton & Polivy, 1991) in order to reflect upon momentary changes. Using both questionnaires would have given insight in both the sudden and gradual changes of self-esteem. Additionally, it is recommended to have at least some more measurements in time to investigate levels of peer acceptance, self-esteem and well-being. It is possible that stronger positive relationships between kind acts and an increase in subjective and objective peer-acceptance, self-esteem and well-being could be exhibited by the accumulation of prosocial experiences over time.

Conclusion

This study found support for core predictions of sociometer theory, including positive associations between subjective peer acceptance, self-esteem and well-being. These associations may be so robust that trying to intervene on them using a minimalistic intervention did not affect them. Increasing engagement of students via mechanisms that intrinsically motivate adolescents would improve the intervention, so that in the future it can successfully improve peer acceptance, self-esteem and well-being. Adolescence is this unique window for improving self-esteem and well-being long term (Gruenfelder-Steiger et al., 2016), so it can set people up for a much longer period in life – that is a dreamed promise for anyone interested in both academic research and positive societal impact.

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Appendix

Questions Implementation Measure

1. How often did you execute your daily assignment?
    1. Every day
    2. More than half of the days
    3. Approximately half of the days
    4. Less than half of the days
    5. Never

On a scale from (0) disagree to (10) agree:

2. To what extent did you like your exercise?
3. To what extent did you find your exercise useful?

On a scale from (1) not at all to (5) very much:

Because I executed the assignment daily:

4. My classmates appreciate me more
5. I appreciate myself more
6. Is my mood positively influenced (e.g. I feel happier)?

On a scale from (0) not motivated to (10) very motivated.

To what extent were you motivated to execute your assignment and respond to the daily questionnaires?

7. In the first week
8. In the second week
9. In the third week
10. In the fourth week

On a scale from (0) disagree to (10) agree

11. The daily e-mail motivated me to perform the exercise every day

On a scale from (0) unlikely to (10) very likely

12. To what extent is it likely that you will execute your exercise after the intervention?