

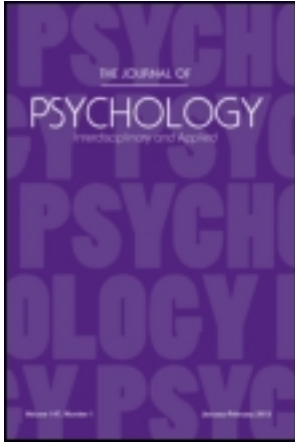
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On Being Grateful and Kind: Results of Two Randomized Controlled Trials on Study-Related Emotions and Academic Engagement

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ABSTRACT. Despite the large amount of research attention to engagement as well as positive psychology in a general context, there have been few attempts to increase academic well-being by means of positive psychological interventions. This article tests the potential of positive psychological interventions to enhance study-related positive emotions and academic engagement, and to reduce study-related negative emotions among university students. We modified two existing positive interventions that are aimed at increasing general happiness for use in an academic context. These interventions focused on “thoughts of gratitude” and “acts of kindness,” respectively. The present study consisted of two randomized controlled trials with experimental (thoughts of gratitude or acts of kindness) and control conditions in which participants were monitored on a daily basis during the one-week intervention, and additional pre-, post-, and follow-up assessments were carried out. Results revealed that the gratitude intervention had a significant positive effect on daily positive emotions only. The kindness intervention had a positive influence on both positive emotions and academic engagement, though not in the long run. The results showed no effects on negative emotions in either of the two interventions. Positive psychological interventions seem to foster positive emotions and academic engagement, but do not decrease negative emotions.

Keywords: academic engagement, acts of kindness, emotions, thoughts of gratitude, positive psychology

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Introduction

THE RECENT RISE OF POSITIVE PSYCHOLOGY has laid out the theoretical foundation for positive states such as academic engagement. *Academic engagement* is a positive and affective–cognitive state of mind that is characterized by vigor, dedication, and absorption (Schaufeli & Bakker, 2004; Schaufeli, Martinez, Marques Pinto, Salanova, & Bakker, 2002). University students are vigorous when they experience high levels of energy and mental resilience, willingness to invest effort, and persistence in the face of difficulties. Dedicated students feel, for example, a sense of significance, enthusiasm, inspiration, pride, and challenge with regard to their studies. Last, students are absorbed when they are fully focused on their study tasks and feel that time is flying (Bresó, Schaufeli, & Salanova, 2011). The concept of academic engagement has become more and more relevant due to the increasing pressure on students to perform and successfully complete their studies. Previous studies have found that academic engagement, or study engagement, is associated with higher levels of self-efficacy, hope, and optimism among students (Ouweneel, Le Blanc, & Schaufeli, 2011) as well as with superior academic performance (Salanova, Schaufeli, Martinez, & Bresó, 2010).

Although positive psychological interventions have been used in general contexts to increase happiness (for an overview, see Lyubomirsky, 2007) as well as in work contexts to increase work engagement (for an overview, see Schaufeli & Salanova, 2010), intervention studies to increase academic engagement still stand out. Hence, the time has come to combine our knowledge on positive psychology and academic engagement, and apply this knowledge by designing and evaluating positive psychological interventions within an academic setting. Following the basic idea of positive psychology, study-related interventions should not focus exclusively on stressed students, but also on those who seem to be functioning well, though not to the best of their abilities. Recently, Ouweneel et al. (2009) coined the term “amplition”—stemming from the Latin *amplio*, meaning to enlarge, increase, or magnify—to refer to interventions that focus on improvement, instead of treatment or prevention. Therefore, in contrast with treating students who are stressed (curation) or avert such negative states (prevention), positive psychological interventions are about boosting positive states (amplition), such as engagement.

The main objective of this article is to demonstrate that it is possible to use existing empirical knowledge on positive, context-free happiness interventions and their favorable effects on subjective well-being to design specific study-related amplitive interventions. We take on two existing happiness interventions that are general in nature, and tailor these onto a study-related context. More specifically, by inducing “thoughts of gratitude” and “acts of kindness,” we attempt to enhance study-related positive emotions as well as academic engagement, and reduce study-related negative emotions among students.

Study-Related Emotions and Engagement

Academic engagement is conceptually related to student subjective well-being. Like academic engagement, *subjective well-being* (or *happiness*) is defined as a positive affective–cognitive state of mind (Diener, Suh, Lucas, & Smith, 1999). According to Ryan and Deci (2001), subjective well-being: “. . . consists of three components: life satisfaction, the presence of positive mood, and the absence of negative mood, together often summarized as happiness” (p. 144). In short, happiness is as a positive affective–cognitive state that consists of both feeling good (affect) and thinking positively of your life (cognition). The same applies to academic engagement; it entails both feeling good when studying and evaluating your studies positively. Whereas subjective well-being relates to life in general, engagement is a positive affective–cognitive state with regard to specific life-domains, such as one’s study. For that reason, we propose academic engagement as a domain-specific form of student subjective well-being.

Emotions refer to relatively intense, short-lived affective experiences that are focused on specific objects or situations (Gray & Watson, 2001). Main causes of study-related or academic emotions are successes and failures at university as well as the process of studying itself or specific social interactions (Pekrun, Goetz, Titz, & Perry, 2002a). Study-related positive emotions help to envision goals and challenges and open the mind to positive thoughts, and may thus make students to feel more engaged regarding their studies (Pekrun, Goetz, Titz, & Perry, 2002b). In contrast, study-related negative emotions are negatively related to academic motivation, a construct akin to academic engagement (Pekrun, Goetz, Frenzel, Barchfeld, & Perry, 2011). As a result, study-related emotions are immediate responses to the academic environment and could influence students’ levels of engagement, which is a more enduring state of subjective well-being (Schaufeli, Salanova, González-Romá, & Bakker, 2002).

Positive Psychological Interventions

Subjective well-being has three main determinants: genetics, circumstances, and intentional activities (Lyubomirsky, Sheldon, & Schkade, 2005). Lykken and Tellegen (1996) claimed that approximately half of the variance in well-being is determined by genetics, and circumstances would account for about only 10% of the variance (Diener et al., 1999). Last, approximately 40% of the variance in well-being originates in intentional activities. These activities include all things people choose to do and think in their daily lives (Lyubomirsky, Sheldon, et al., 2005). Three types of intentional activities are positively related to well-being: cognitive activities, such as expressing gratitude towards others (e.g., Emmons & McCullough, 2003), behavioral activities, such as being kind to others (e.g., Otake, Shimai, Tanaka–Matsumi, Otsui, & Fredrickson, 2006), and motivational activities, such as setting and planning toward personal and meaningful goals (e.g., MacLeod, Coates, & Hetherington, 2008). In the current article, we investigate the effects of thoughts of gratitude as a cognitive activity and acts of kindness as a

behavioral activity, respectively, as previous research found that these interventions enhance general well-being in (e.g., Otake et al., 2006; Sheldon & Lyubomirsky, 2006). In addition, these two types of interventions can be implemented within a relatively short time frame and may produce instant effects. In contrast, for motivational activities, one needs more time and energy to affect well-being, as making progress toward attaining personal goals is a necessary ingredient for evoking positive experiences (MacLeod et al.).

Thoughts of Gratitude

One can direct gratitude toward life experiences or toward people. Expressing gratitude may lead to other kinds of positive emotions such as enthusiasm and inspiration because it promotes the savoring of positive experiences, so that people can optimize feelings of enjoyment from their circumstances (Sheldon & Lyubomirsky, 2006). These momentary positive feelings may result in longer term states of well-being such as engagement (Schaufeli & Van Rhenen, 2006). In addition, gratitude is incompatible with feeling bad; therefore, it is likely that stimulating gratitude inhibits negative emotions (McCullough, Emmons, & Tsang, 2002). Emmons and McCullough (2003) conducted three studies on the effects of counting one's blessings, (i.e., feeling gratitude toward life experiences): a weekly and a daily gratitude intervention among "healthy" participants, and a gratitude intervention in a clinical sample. They concluded that keeping daily gratitude notes for thirteen days had a stronger instant effect on positive emotions than a weekly intervention. Keeping weekly gratitude notes for ten weeks was needed to affect physical health in a positive way. Last, as opposed to the first two studies, in the third study using a clinical sample, daily gratitude notes resulted in a decrease of negative emotions. Also, studies showed positive effects on positive emotions and well-being in a two-week daily gratitude intervention among early adolescents (Froh, Sefick, & Emmons, 2008), in a gratitude intervention among students consisting of three sessions in four weeks (Sheldon & Lyubomirsky, 2006), in a gratitude contemplation intervention of eight days in four weeks (Rash, Matsuba, & Prkachin, 2011), and lastly, in a six-week intervention among students (see Lyubomirsky, King, & Diener, 2005).

Seligman, Steen, Park, and Peterson (2005) conducted randomized controlled trials of five separate positive psychology interventions. Results showed that the gratitude activity (i.e., writing and delivering a gratitude letter to someone) caused the most pronounced positive changes in happiness among participants. The positive effect on well-being lasted up to a month. Participants in the gratitude condition had one week to write a gratitude letter to someone who they are grateful to but never properly thanked, and bring this letter to the person in question. Watkins, Woodward, Stone, and Kolts (2003) compared the effectiveness of cognitive and behavioral gratitude interventions. They found that a cognitive intervention, such as grateful thinking, had a stronger effect on positive emotions than a behavioral intervention, that is, writing a gratitude essay or a gratitude letter, probably because

writing an essay or letter was too demanding. All in all, general, context-free gratitude interventions are effective in enhancing well-being (i.e., positive emotions), and cognitive gratitude interventions seem to have stronger effects than behavioral gratitude interventions.

Acts of Kindness

The effects of acts of kindness have received less research attention. Whereas the expression of kindness by other people can result in gratitude, kindness entails enacting kind behaviors toward other people (Otake et al., 2006). Conducting acts of kindness, such as helping someone with his or her homework, or holding a door for someone, may have a favorable effect on positive emotions and well-being. Research showed that when people perform behaviors that are courteous or altruistic, they report higher levels of happiness (Lyubomirsky, King, et al., 2005). On the one hand, performing acts of kindness makes people feel good about themselves and their ability to help other people, whereas on the other hand, kind acts generate positive reactions of others like gratitude and affection (Lyubomirsky, Sheldon, et al., 2005). These positive experiences cause people to experience even more positive emotions and may in the long run lead to higher levels of well-being such as engagement. Simply monitoring one's acts of kindness for one week appeared to affect the level of subjective well-being significantly (Otake et al., 2006). As far as we know, the effects of acts of kindness on negative emotions have not been investigated yet.

The Present Studies

By conducting positive psychology interventions—which have already been shown to enhance positive emotions and reduce negative emotions—we aim for the participants to have positive experiences and as such elevate their levels of academic engagement. Study 1 and Study 2 both comprise of randomized controlled trials in which the participating students were randomly assigned to an experimental group, either “thoughts of gratitude” (Study 1) or “acts of kindness” (Study 2), or to one of the two nonintervention control groups. For Study 1, Hypothesis 1a states that students who perform thoughts of gratitude, experience significantly more positive emotions over time (during and after the intervention) than do students of the control group. In other words, we expect an interaction effect of time and group on positive emotions. We expect opposite effects of thoughts of gratitude on negative emotions. Therefore, Hypothesis 2a states that students who perform thoughts of gratitude, experience significantly less negative emotions over time (during and after the intervention) than do students of the control group. That is, we expect an interaction effect of time and group on negative emotions. Last, Hypothesis 3a assumes that students who perform thoughts of gratitude experience significantly more academic engagement over time (after the intervention) than do students of the control group. In other words, we expect an interaction effect of time and group on academic engagement. For Study 2—acts

of kindness—we expect similar patterns; we assume that students who perform acts of kindness will show a significant increase in positive emotions (Hypothesis 1b) and academic engagement (Hypothesis 3b) compared to the control group, and show a significant decrease in negative emotions (Hypothesis 2b) compared to the control group.

Method

Participants Study 1

In Study 1, 50 students participated, 25 in the experimental condition, and 25 in the control condition. Their mean age was 21.26 years ($SD = 1.93$). Of the participants, 72% was female. Most of the participants were in the second or third year of their studies (79.6%).

Participants Study 2

In Study 2, 49 students participated, 25 in the experimental condition, and 24 in the control condition. Their mean age was 20.88 ($SD = 1.94$) and most of the participants were female (84%). As in Study 1, most of the participants (81.7%) were in the second or third year of their studies.

Recruitment and General Procedure Study 1 and 2

We recruited the participants of both studies via posters and flyers. Following Seligman et al. (2005), we conducted all further communication via the Internet. We asked the students to send an e-mail to the researchers in case they wanted to participate. The university students, who participated voluntarily, received course credits in return after full completion of the study. Participants were then randomly assigned to the experimental and control conditions. After registration, we sent an e-mail to the participants in which we stipulated the procedures. The research started in a weekend with an online survey, in which we assessed positive and negative emotions and academic engagement (T0–week 0). After completing the survey, the participants received specific instructions for the intervention week via e-mail, depending on the condition that they were assigned to. During the intervention week, from Monday until Friday, every morning the participants received an email on the activities for that specific day. Along with these emails, we sent a short questionnaire every day, to assess positive and negative emotions (day 1–day 5). Participants were requested to fill in the questionnaire and write down a short report on the intervention activities of that day, both in the experimental and control condition. We asked all participants to use at least 50 words in the reports on their activities and thoughts. They were required to send this report and questionnaire back per e-mail every evening. To optimize participation, participants received two reminders per day via e-mail. After the intervention week, the post measurement of positive and negative emotions and academic engagement took place by means of a second online survey (T1–week 1). Last, four weeks later,

we completed the follow-up measurement on positive and negative emotions and academic engagement (T2-week 5).

Procedure Study 1

We asked the participants in the experimental gratitude condition to think of people that they were grateful for. We instructed the participants to focus their gratitude each day on a different domain. On Monday, we asked them to think back on their years at Primary School.

Take your time to think of a person you were close to and of whom you are grateful with reference to a specific event. For example, a friend or family member who helped you with your homework. Write down a short note on what you are thinking: To whom do you want to express your gratitude and why?

On Tuesday, the instructions were similar, but with regard to the years at High School. The instruction on Wednesday had to do with the academic study the participant is currently enrolled in. On Thursday, the participants were asked to think of their High School period once more, but specifically of a teacher. Last, on Friday, the students had to think again of a teacher they were grateful of, but with regard to their current studies. Following Sheldon and Lyubomirsky (2006), we asked participants in the control condition every day, from Monday until Friday, to write down the details of their day. The specific instruction was: "Think of the people you met and experiences you had today. Describe in short what your day looked like."

Procedure Study 2

Participants of the kindness condition did not receive daily instructions like in Study 1; rather they received the complete instruction for the intervention week beforehand. Every day, from Monday until Friday, the assignments were similar.

We would like to ask you to pay close attention to your behavior toward the people around you at university. During the coming week, please perform at least five acts of kindness per day and report on them in the evening, including the responses of others that you received. Examples of acts of kindness are: holding a door for someone at university, greeting strangers in the hallway, helping other students in preparing for an exam, etcetera. It does not matter whether you address your acts of kindness to people you know or not. However, it is important that the acts that you perform are study-related somehow (i.e., take place at university or are related to academic tasks).

The participants in the control condition had similar instructions to those in Study 1: "Think of the people you met and experiences you had today. Describe in short what your day looked like."

Measures Study 1 and 2

Study-Related Positive and Negative Emotions

We used a shortened 12-item Dutch version (Schaufeli & Van Rhenen, 2006) of the Job-related Affective Well-being Scale (JAWS; Van Katwyk, Fox, Spector, & Kelloway, 2000) to assess positive and negative emotions (both six items). For the present study, we adjusted the scale instruction to students by substituting “work” by “studies.” Further, we modified the items to fit the time line of our studies. Example items of the five daily measures of emotions are (day 1–day 5): “Today, I felt inspired,” and “Today, I felt discouraged.” The pre-, post-, and follow-up measurements (T0–week 0, T1–week 1, T2–week 5) contained similar items that were formulated as follows: “My study makes me feel inspired,” and “My study makes me feel discouraged.” We scored all items on a five-point Likert scale (1 = [almost] never, 5 = [almost] always). The scale of positive emotions had a mean reliability of $\alpha_M = .71$ across the eight time points in Study 1 (range of .60–.81) and of $\alpha_M = .79$ in Study 2 (range of .70–.87). The scale of negative emotions had a mean reliability of $\alpha_M = .68$ across the eight time points in Study 1 (.54–.78) and of $\alpha_M = .75$ in Study 2 (range of .69–.84).

Academic Engagement

We assessed academic engagement by means of the Utrecht Work Engagement Scale–Student Survey (UWES–S; Schaufeli, Salanova, et al. 2002) that consists of 17 items. We measured academic engagement only at the pre-, post-, and follow-up measurements (T0–week 0, T1–week 1, T2–week 5). A sample item is “When I’m doing my work as a student, I feel bursting with energy.” We scored all items on a seven-point Likert scale (0 = never, 6 = always). The scale had a good reliability across the three time points in both Study 1 ($\alpha_{T0} = .94$, $\alpha_{T1} = .94$, and $\alpha_{T2} = .92$) and Study 2 ($\alpha_{T0} = .91$, $\alpha_{T1} = .90$, and $\alpha_{T2} = .93$).

Data Analyses

To test the hypotheses of Study 1 and 2, we carried out 8 (time: T0, day 1–day 5, T1, and T2) \times 2 (condition: experimental and control condition) repeated measures analyses of variances (RM–ANOVA’s), with time as a within-subject factor, and condition as a between-subject factor to investigate intervention effects on positive and negative emotions. Furthermore, we carried out 3 (time: T0, T1, and T2) \times 2 (condition: experimental and control condition) RM–ANOVA’s, with time as a within-subject factor, and condition as a between-subject factor to investigate intervention effects on academic engagement. We looked at the within-subject contrasts in case of significant hypothesized interaction effects of time and condition and conducted Bonferroni post-hoc tests in the case of significant main effects of time and condition. This was because we are interested to know *at which time points* the interaction and main effects occur. In case of a main effect of time, we checked the differences within the conditions, between

the separate time points. In the case of a main effect of condition, we conducted Bonferroni post-hoc tests to see at what time points the mean outcome scores of both conditions significantly differed. Last, to test whether or not the assumption of sphericity is met, we conducted Mauchly's tests. In the case of significant estimates of sphericity, the Greenhouse-Geisser correction was applied to the F -values (Field, 2005).

Results Study 1

Preliminary Analyses

Independent samples t -tests on the T0 variables revealed that participants in the two conditions did *not* significantly differ as regards the mean levels of study-related positive emotions, $t(48) = 1.16$, $p = .25$, study-related negative emotions, $t(48) = -0.29$, $p = .77$, and academic engagement, $t(48) = 1.26$, $p = .22$. The means and standard deviations of all outcome variables are depicted in Table 1. Further, it appeared that participants in the two conditions did *not* differ with regard to age, $t(48) = -0.22$, $p = .83$, year of study, $t(48) = -.71$, $p = .48$, or gender, $\chi^2(1) = 0.40$, $p = .53$. As a result, we excluded demographic variables from further analyses.

Study-Related Positive Emotions

Results of the RM-ANOVA showed *no* main effect of time on positive emotions, $F(7, 42) = 0.94$, $p = .49$, but a main effect of condition, $F(1, 48) = 7.29$, $p < .01$, $\eta^2 = .13$, and a *marginally* significant interaction effect of time and condition on positive emotions, $F(7, 42) = 1.92$, $p = .09$, $\eta^2 = .24$. Although the interaction effect was in the assumed direction, it was only marginally significant. Therefore, we have to suspend judgment (Keppel, 1991) with regard to Hypothesis 1a, which stated that the experimental condition would develop higher levels of positive emotions over time than the control condition.

Following the marginally significant interaction effect of time and condition on positive emotions, within-subject contrast analyses (see Table 2) showed that only an interaction between time and condition was observed when we compared T0 (week 0) to day 5 (i.e., last intervention day). In other words, the increase in positive emotions was significantly stronger in the experimental condition than in the control condition, but not until *the end* of the intervention week. Last, Bonferroni post-hoc tests confirmed the findings of the RM-ANOVA and are shown in Table 2. The scores of the participants in the experimental and control condition only differed significantly on the last two intervention days (i.e., day 4 and day 5).

Study-Related Negative Emotions

Mauchly's tests revealed that the assumption of sphericity is violated. Therefore, we report on the Greenhouse-Geisser corrected F -values for the main effect

TABLE 1. Means and Standard Deviations, Per Condition and Per Time Point of Positive Emotions, Negative Emotions, and Academic Engagement of Study 1 (Thoughts of Gratitude)

Time point	Positive emotions				Negative emotions				Academic engagement			
	Experimental		Control		Experimental		Control		Experimental		Control	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
T0 (week 0)	3.83	0.54	3.66	0.47	1.93	0.52	1.97	0.46	3.49	0.87	3.16	0.98
Day 1	3.71	0.41	3.54	0.55	1.91	0.59	1.97	0.62				
Day 2	3.77	0.49	3.48	0.52	1.78	0.46	1.97	0.63				
Day 3	3.76	0.39	3.53	0.43	1.79	0.42	1.92	0.48				
Day 4	3.84	0.52	3.38	0.49	1.80	0.46	1.93	0.53				
Day 5	3.95	0.60	3.38	0.48	1.69	0.50	1.88	0.44				
T1 (week 1)	3.87	0.62	3.74	0.46	1.84	0.44	1.72	0.34	3.46	0.93	3.17	0.94
T2 (week 5)	3.72	0.49	3.64	0.57	1.86	0.51	1.88	0.43	3.51	0.73	3.00	0.87

Note. *M* = mean; *SD* = standard deviation.

TABLE 2. Results of Within-Subject Contrast Analyses, Showing Interaction Effects Per Time Point on Positive Emotions, With T0 as Reference and the Bonferroni Post-Hoc Tests for the Mean Differences in Positive Emotions Across the Two Conditions Per Time Point for Study 1 (Thoughts of Gratitude)

Time point	Within-subject contrast analyses			Bonferroni post-hoc tests		
	$F(1, 48)$	p	η^2	Mean difference	SE	p
T0 (week 0) Versus:				0.17	0.14	.25
Day 1	0.00	.97	.00	0.17	0.14	.21
Day 2	0.55	.46	.01	0.29	0.13	.05
Day 3	0.21	.65	.00	0.23	0.12	.05
Day 4	3.34	.07	.07	0.46	0.13	.00
Day 5	6.64	.02	.12	0.57	0.13	.00
T1 (week 1)	0.05	.82	.00	0.13	0.16	.39
T2 (week 5)	0.39	.54	.01	0.00	0.11	.60

Note. SE = standard error.

of time and the interaction effect. Results showed *no* main effect of time on negative emotions, $F(5.59, 268.28) = 1.29$, $p = .27$, *no* main effect of condition, $F(1, 48) = 0.70$, $p = .41$, and *no* interaction effect of time and condition on negative emotions, $F(5.59, 268.28) = 0.93$, $p = .47$. Hence, Hypothesis 2a was *not* confirmed; we found *no* interaction effect of time and condition on negative emotions.

Academic Engagement

Mauchly's test revealed significant estimates of sphericity of academic engagement. Therefore, again, we report on the Greenhouse-Geisser corrected F -values for the main effect of time and the interaction effect. Results showed *no* main effect of time on academic engagement, $F(1.77, 84.73) = 0.85$, $p = .42$, *no* main effect of condition, $F(1, 48) = 2.44$, $p = .13$, and *no* interaction effect of time and condition on academic engagement, $F(1.77, 84.73) = 2.03$, $p = .14$. The interaction effect of time and condition on academic engagement was *not* significant. Therefore, Hypothesis 3a, which stated that the experimental condition would develop more academic engagement over time than the control condition, was *not* confirmed. Figure 1 shows the mean scores on positive emotions, negative emotions, and academic engagement at all time-points of the experimental and control condition.

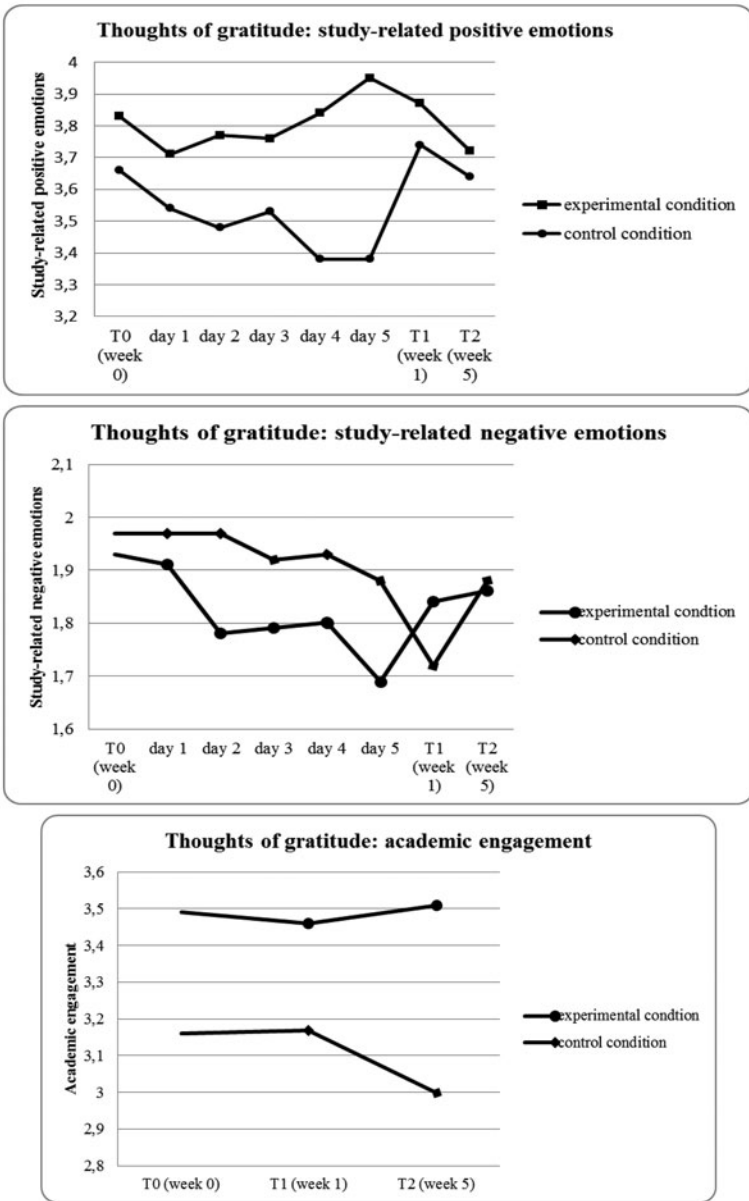


FIGURE 1. Mean scores on positive emotions, negative emotions, and academic engagement of the experimental condition and control condition of Study 1 (thoughts of gratitude).

Results Study 2

Preliminary Analyses

Independent samples *t*-tests on the T0 variables revealed that participants in the two conditions did *not* significantly differ as regards to mean levels of positive emotions, $t(47) = 0.50, p = .62$, negative emotions, $t(47) = -0.34, p = .57$, and academic engagement, $t(47) = 0.32, p = .75$. The means and standard deviations of all outcome variables of Study 2 are depicted in Table 3. Further, participants in the two conditions did *not* differ with regard to age, $t(47) = -0.58, p = .57$, year of study, $t(47) = 0.89, p = .38$, or gender, $\chi^2(1) = 1.36, p = .24$. So, we excluded demographic variables from further analyses.

Study-Related Positive Emotions

For positive emotions, results showed *no* main effect of time, $F(7, 41) = 1.82, p = .11$, but a main effect of condition, $F(1, 47) = 11.21, p < .01, \eta^2 = .19$, and an interaction effect of time and condition on positive emotions, $F(7, 41) = 3.31, p < .01, \eta^2 = .36$. Since the interaction effect was in the assumed direction (see Figure 2), Hypothesis 1b, which stated that the experimental condition would develop higher levels of positive emotions over time than the control condition, was confirmed.

We found significant interaction effects between time and condition when we compared the pre measurement (T0–week 0) to the last four days of the intervention week (day 2–5). Therefore, the experimental condition showed a significantly stronger increase in positive emotions than the control condition during the most part of the intervention week. Figure 2 shows the mean scores on positive emotions over time of the experimental and control conditions. Bonferroni post-hoc tests confirmed the findings of the RM-ANOVA's and are shown in Table 4. The participants of the experimental condition scored significantly higher on positive emotions than the participants of the control condition at the final four intervention days (day 2–5).

Study-Related Negative Emotions

Mauchly's test revealed significant estimates of sphericity with regard to negative emotions. Therefore, we report on the Greenhouse-Geisser corrected *F*-values for the main effect of time and the interaction effect. Results showed *no* main effect of time, $F(5.60, 263.33) = 0.56, p = .75$, *no* main effect of condition, $F(1, 47) = 1.11, p = .30$, and *no* interaction effect of time and condition on positive emotions, $F(5.60, 263.33) = 0.72, p = .63$. Hence, Hypothesis 2b was not supported; we found *no* interaction effect of time and condition on negative emotions.

TABLE 3. Means and Standard Deviations, Per Condition and Per Time Point of Positive Emotions, Negative Emotions, and Academic Engagement of Study 2 (Acts of Kindness)

Time point	Positive emotions				Negative emotions				Academic engagement			
	Experimental		Control		Experimental		Control		Experimental		Control	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
T0 (week 0)	3.54	0.59	3.45	0.65	2.01	0.46	2.07	0.69	3.08	0.80	3.01	0.73
Day 1	3.47	0.46	3.18	0.58	1.89	0.47	1.99	0.64				
Day 2	3.53	0.51	3.03	0.58	1.92	0.51	2.03	0.63				
Day 3	3.61	0.42	3.13	0.54	1.91	0.51	2.00	0.56				
Day 4	3.63	0.41	3.13	0.58	1.90	0.50	2.04	0.53				
Day 5	3.81	0.46	3.04	0.51	1.79	0.50	2.10	0.64				
T1 (week 1)	3.57	0.75	3.31	0.61	1.97	0.75	2.19	0.72	3.39	0.56	3.02	0.83
T2 (week 5)	3.67	0.68	3.47	0.76	2.02	0.70	1.95	0.58	3.02	0.82	3.07	0.89

Note. *M* = mean; *SD* = standard deviation.

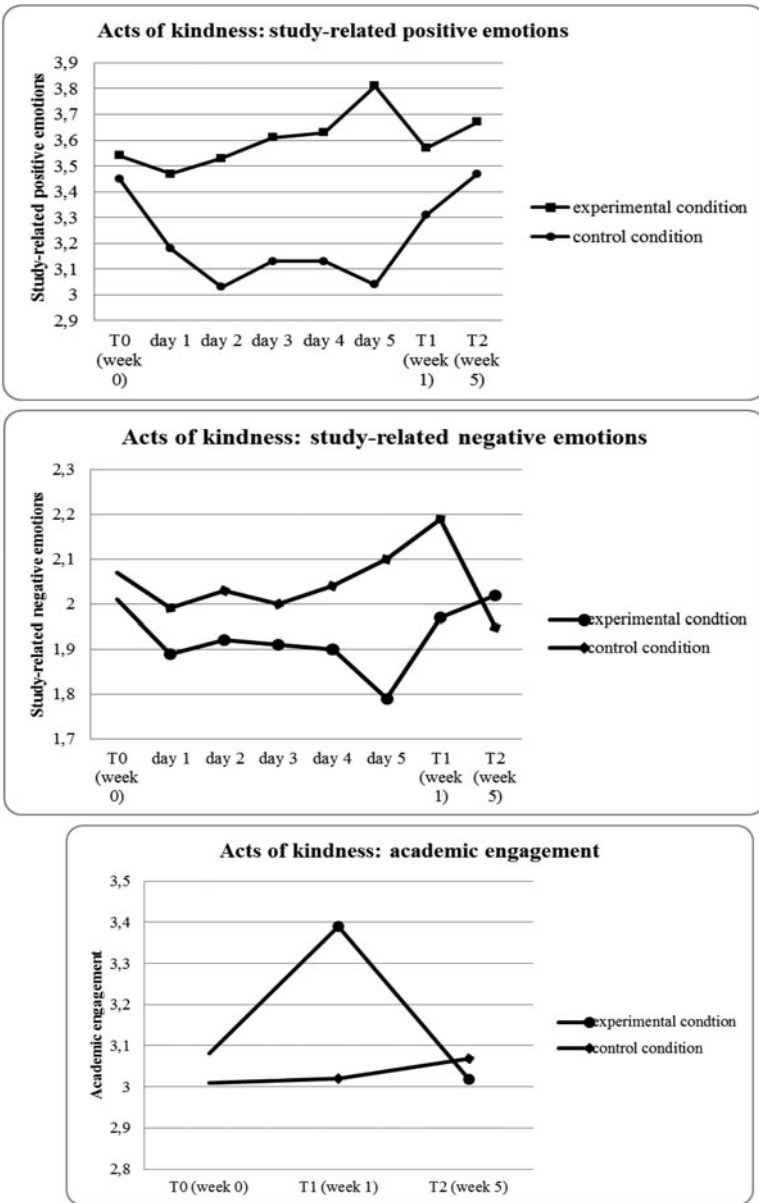


FIGURE 2. Mean scores on positive emotions, negative emotions, and academic engagement of the experimental condition and control condition of Study 2 (acts of kindness).

TABLE 4. Results of Within-Subject Contrast Analyses, Showing Interaction Effects Per Time Point on Positive Emotions, With T0 as Reference and the Bonferroni Post-Hoc Tests for the Mean Differences in Positive Emotions Across the Two Conditions Per Time Point for Study 2 (Acts of Kindness)

Time point	Within-subject contrast analyses			Bonferroni post-hoc tests		
	<i>F</i> (1, 47)	<i>p</i>	η^2	Mean difference	<i>SE</i>	<i>p</i>
T0 (week 0) Versus:				0.09	0.18	.62
Day 1	1.95	.17	.04	0.29	0.15	.06
Day 2	5.59	.02	.11	0.50	0.16	.00
Day 3	4.70	.04	.09	0.48	0.14	.00
Day 4	5.10	.03	.10	0.50	0.14	.00
Day 5	19.91	.00	.30	0.77	0.14	.00
T1 (week 1)	0.87	.36	.02	0.26	0.20	.19
T2 (week 5)	0.35	.56	.01	0.19	0.21	.35

Note. *M* = mean; *SE* = standard error.

Academic Engagement

Results showed a main effect of time on academic engagement, $F(2, 46) = 3.81, p < .05, \eta^2 = .14$, no main effect of condition, $F(1, 47) = 0.42, p = .52$, and an interaction effect of time and condition on academic engagement, $F(2, 46) = 5.37, p < .01, \eta^2 = .19$. The interaction effect of time and condition on academic engagement was not significant in Study 1, but in Study 2 the interaction effect was significant and in the expected direction. As a result, Hypothesis 3b, which stated that the experimental condition would develop more academic engagement over time than the control condition, was confirmed.

In addition, within-subject contrast analyses showed that the increase in academic engagement in the experimental condition was *marginally* significant in comparison to the control condition from T0 (week 0) until T1 (week 1), $F(1, 47) = 3.53, p = .07, \eta^2 = .07$. After that time, compared to the control condition, the experimental condition decreased significantly in academic engagement from T1 (week 1) until T2 (week 5), $F(1, 47) = 10.27, p < .001, \eta^2 = .18$. Last, Bonferroni post-hoc tests showed that the experimental condition scored significantly higher ($p < .05$) on the post measurement of academic engagement (T1–week 1) in comparison to the pre–intervention measurement (T0–week 0). Moreover, the follow–up measurement (T2–week 5) showed significantly lower ($p < .001$) scores on academic engagement for the experimental condition compared to the post measurement (T1–week 1). Figure 2 shows the mean scores on

positive emotions, negative emotions, and academic engagement at all time-points of the experimental and control condition.

Discussion

Conclusions

Our objective was to increase daily and study-related positive emotions and academic engagement, and decrease daily and study-related negative emotions by means of positive psychological interventions. We took on two interventions, namely the promotion of thoughts of gratitude and acts of kindness, and adapted these for use in an academic context. Thoughts of gratitude (Study 1) had only a marginally positive effect on positive emotions compared to the control condition, and no effect on academic engagement or negative emotions. Acts of kindness (Study 2) showed stronger effects. Not only the interaction effects on positive emotions were quite strong compared to the first intervention, but we found a significant effect on academic engagement compared to the control condition directly after the intervention week (T1–week 1) as well. Last, we found no significant effects of acts of kindness on negative emotions.

In reference to these results it is important to note that the control groups of both studies slightly decreased in positive emotions over time (see Figures 1 and 2), which could partly have caused the interaction effects on positive emotions. Probably, both positive interventions have a buffering effect on the decrease in positive emotions over time. In addition, the positive effect on academic engagement in Study 2 was short-term; the positive effect had disappeared at the time of the follow-up measurement. Probably, the participants returned to their baseline-level of academic engagement because the effects of their acts of kindness had faded out.

Thoughts of gratitude enhanced positive emotions only at the end of the intervention week. This suggests that gratitude thoughts may have a cumulative effect on positive emotions. It seems that it takes a while before increases in positive emotions as a consequence of gratitude thoughts become significant in comparison to the control condition. This is in line with Emmons and McCullough (2003) and Watkins et al. (2003), who found that daily gratitude thoughts led to increases in positive emotions, but only weekly gratitude thoughts over longer periods of time led to longer-term states of (physical) well-being. However, in contrast, Seligman et al. (2005) did find a significant positive long-term effect of writing a gratitude letter during only one week. Important is, though, that the intervention in the Seligman et al. study was behavioral in nature. That is, participants not only had to write a gratitude letter but actually deliver and read the letter to the person they were grateful of as well. It is likely that by doing so, positive feedback from the recipient was provoked, which might have boosted positive emotions among the participants. All in all, our results show that keeping gratitude notes on a daily basis during one week resulted in higher levels of positive emotions for a

few days—as long as the intervention lasted—but it neither increased positive emotions in the longer run, nor did it make the participants more engaged in their studies. Most likely, this is due to the fact that our intervention was cognitive instead of behavioral in nature.

Based on our post-hoc analyses we were able to establish that the effects of the acts of kindness intervention on positive emotions and academic engagement were much stronger than the effects of thoughts of gratitude. At already the second day of the intervention week, the level of positive emotions in the experimental group was significantly higher compared to that of the control group. One explanation is that the kindness intervention was more intensive than the gratitude intervention (i.e., five acts of kindness per day versus one thought of gratitude per day). Another possibility is that, contrary to gratitude thoughts, acts of kindness often evoked immediate positive feedback. Positive reactions of people towards the participants were likely to strengthen the effects of the acts of kindness. Besides feeling better about themselves because they did something kind, positive consequences of the participants' actions would probably have immediately been visible and might have been reciprocated (Trivers, 1971). Participants could have got favors in return, a thank you, or just a smile. These kinds of positive feedback could—by its very nature—not have occurred as a result of our thoughts of gratitude intervention. Please note that the gratitude intervention study of Seligman et al. (2005) might have been successful—in contrast to our Study 1—because it was behavioral rather than cognitive in nature. Hence, we conclude that positive behavioral interventions work better and faster than cognitive interventions. Of course, gratitude interventions can be designed as behavioral interventions so that participants express gratitude towards persons which enables them to receive feedback, for example by reading a gratitude letter to someone (Seligman et al.; Watkins et al., 2003). However, Watkins et al. showed that thoughts of gratitude generate stronger effects on positive emotions than writing gratitude letters or essays. According to the authors, positive emotions could be inhibited because it is quite a comprehensive assignment that took a lot of time. Moreover, the prospect to have to read the letter out loud to someone could have caused anxiety among the participants (Watkins et al.). Another explanation could have something to do with the fact that the participants were told that their letter would be sent to the person in question, but this was not done actually. Hence, participants did not receive any positive feedback, which might have been the most effective part of the intervention as designed by Seligman et al. Therefore, in Watkins et al.'s study the participants could have felt anxious up front with the idea that they had to read the letter out loud, but did not have the actual positive experience by having done this and receiving a positive reaction.

Although we did find some significant increases of positive emotions and of academic engagement in Study 2, our results show that neither of our interventions significantly decreased negative emotions. Most likely, this is because

our samples were non-clinical in nature. That is, our samples only included students that were normal-functioning and not dropped out of their studies because of depression, burnout or otherwise. In clinical samples positive interventions are likely to affect negative states, though in nonclinical samples this is probably not the case (for a review, see Sin & Lyubomirsky, 2009). Although some positive interventions appeared to have a decreasing effect on negative states in nonclinical samples (e.g., Seligman et al., 2005; Sheldon & Lyubomirsky, 2006), other intervention studies showed effects on positive states only (e.g., Emmons & McCullough, 2003; Cohn, Fredrickson, Brown, Mikels, & Conway, 2009). This is probably caused by a so-called “floor effect.” Our assumption is that there was not much room for a decrease in levels of negative emotions of our participants, because they did not score high on positive emotions to begin with (i.e., below a score of two in all cases). Study 2 showed that acts of kindness not only increased the levels of positive emotions but caused a (short-term) positive effect on academic engagement as well. We assume that by performing acts of kindness, participants had positive experiences and felt positive emotions which helped them to envision goals and challenges and as such to be more engaged in their studies (Pekrun et al., 2002b). In contrast, although study-related negative emotions have been found to be negatively related to academic motivation (Pekrun et al., 2011), in Study 2 we did *not* find a decrease in negative emotions, even though the level of academic engagement was elevated after the intervention week. Probably, unless negative emotions become pathological or chronic, they do not have a strong effect on positive states such as engagement (Cohn et al.). Thus, an increase in feeling good, rather than a reduction of feeling bad is more likely to predict growth in engagement (Cohn et al.).

Limitations and Further Research

Investigating the effects of general happiness interventions on domain-specific (e.g., study-related context) well-being outcomes seems promising. In our studies, we established that the interventions related to thoughts of gratitude and acts of kindness had a positive effect on the level of positive emotions and, in Study 2, also on the level of academic engagement. Even though our kind of studies are relatively new in the field of student well-being and particularly acts of kindness proved to be an important research subject, they have some limitations that are important to mention. First of all, although we conducted our studies within an academic context, we adopted a general approach. That is, our studies focused on students that were participating in different courses within different studies. Previous research has mostly shown that academic emotions and motivations are differentially related to, for example, academic achievement across different sub-domains (i.e., specific courses or studies) within education (e.g., Bong, 2001) and academia (Goetz, Frenzel, Pekrun, Hall, & Lüdtke, 2007). That means that

emotions and motivations are organized in a domain-specific matter. Therefore, future studies could conduct interventions within these specific sub-domains and assess emotions related to these domains.

Next, some effects were marginally significant, namely, the interaction effect of time and group on positive emotions in Study 1 and the interaction effect of time and group on academic engagement in Study 2 (contrast of T0–T1). However, as both studies had small sample sizes, we found these results noteworthy nonetheless. That being said, the number of participants in the two intervention studies was limited. Using a larger sample would have resulted in more statistical power and probably would have strengthened the results. Moreover, it can be questioned whether the time period of implementing the interventions was long enough, because the effects of the intervention did not last in the long run. Because gratitude thoughts and performing kind acts affected positive emotions not until the second half of the intervention week, adding a second intervention week might have caused the upward trend to continue. Unfortunately, the literature is not very clear about what type of interventions yields the most positive effects: daily interventions over a short period of time (i.e., massed practice), or weekly interventions over a longer period of time (i.e., spaced practice). Emmons and McCullough (2003) found that writing daily gratitude notes had a stronger effective on positive emotions, whereas a similar long-term intervention had a significant effect on physical health. Sheldon and Lyubomirsky (2006) stated that it would be better to implement interventions at a lower frequency and over a longer period of time than to intervene on a daily basis for a short period of time to find long-term effects on well-being. In contrast, a one-week intervention of writing a gratitude letter showed health benefits up to a month later (Seligman et al., 2005). All things considered, our results show that daily intervention activities can be effective, though the duration of our intervention—only one intervention week—may have been too short.

Further, in Study 2, it remains somewhat unclear whether the increases of positive emotions caused increased levels of academic engagement or that the intervention itself had a direct effect on academic engagement. Therefore, it would be interesting to elaborate on our study and investigate the distinct effects of actual kind acts versus the positive feedback these acts generate, for example, by using open-ended data. Last, we did not investigate individual moderators to differentiate in the effects because of our small sample sizes. A way of extending our knowledge on the effects of domain-specific positive psychological interventions would be to include moderators such as motivation to participate in the intervention (Frederick, Morrison, & Manning, 1996), self-concordance (Sheldon & Lyubomirsky, 2006), and regulatory focus (Van Dijk & Kluger, 2004). We would expect stronger results when participants are willing to engage in the intervention activities, that is, are motivated to participate in the intervention; when the activities are in line with the wishes and values of the participants, that is, the activities are self-concordant; and

when the participants are inclined to invest in themselves and their environment in a positive way, that is, are promotion focused.

Practical Implications

Sin and Lyubomirsky (2009) suggested that researchers and practitioners dealing with positive psychology interventions could combine different types of interventions into a larger, comprehensive program to strengthen their effects. Although it is difficult to establish the unique effects of the separate parts of a comprehensive program, it would increase the likelihood of detecting positive effects on well-being, including in the long run. These types of larger scale programs are referred to as interventions based on a “shotgun approach” (Sin & Lyubomirsky, 2009). Our studies are a first step in developing domain-specific happiness interventions which seem to be effective in increasing study-related positive emotions and academic engagement. In practice, the activities such as showing gratitude and committing acts of kindness should be conducted over a longer period of time. Since it takes a while for these cognitions and behaviors to be internalized, long-term intervention follow-ups could cause a longer-term effect on well-being. The types of interventions that we studied in this article are simple and easy enough to implement in the classroom, or by university supervisors. Note however, that positive interventions are not effective for everyone. “Normal functioning” students are likely to experience positive effects of these types of interventions on positive emotions and engagement, but students with mental health problems or students who have to cope with many stressful situations—such as student nurses—would probably benefit more from preventive interventions such as stress management programs (for a review among student nurses, see Galbraith & Brown, 2011). As stated before, in clinical samples, negative emotions are more dominant and can have negative effects on well-being. Therefore, in such cases, attempting to decrease negative feelings instead of increase positive feelings may be more effective. All in all, interventions focused on amplification appear to have promising effects on enhancing academic well-being. However, this domain needs more studies to extend our knowledge on the effects of this type of positive interventions. Nonetheless, our studies show that, on balance, being grateful and kind to others pays off in terms of positive emotions and academic engagement.

AUTHOR NOTES

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