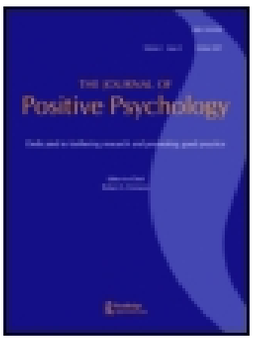

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An integrative intervention for cultivating gratitude among adolescents and young adults

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ABSTRACT

Emerging evidence indicates that practicing gratitude contributes to well-being. The goal of this investigation was to develop a comprehensive, effective intervention for promoting gratitude among adolescents and young adults (ages 16–30). Findings from experimental data indicate that three existing gratitude activities (three good things, benefit appraisals, and a gratitude letter) fostered unique facets of gratitude (Study 1). A combined intervention enhanced gratitude, hope, and prosocial intentions among young adults (Study 2) and adolescents (Study 3). This work extends the literature by providing empirical evidence on how benefit appraisal influence adults, revealing the unique effects of existing gratitude activities, and showing that an integrative intervention is effective for both adolescents and young adults. Furthermore, the resulting intervention is relatively brief and can be implemented online or in-person, which could facilitate widespread dissemination. Implications and directions for future research are discussed.

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Gratitude; adolescents; adults; well-being; intervention; education; prosocial; hope

> 'Happiness is not having what you want, but wanting what you have'
>
> D – Rabbi Hyman Schachtel, 1954, p. 37

What does it take to be happy? Sonjya Lyubomirsky estimates that 50% of one's happiness depends on genes, 10% is based on circumstances, and 40% depends on one's responses to experiences (2007). Given that genes and circumstances are largely outside one's control, many scholars and practitioners who seek to foster well-being focus on helping people develop more positive response strategies. One such strategy is to practice gratitude. Gratitude refers to thoughts and feelings that people experience when they consider the good things and people in their lives. It also includes a behavioral component that entails expressing thanks to others (McCullough, Kilpatrick, Emmons, & Larson, 2001). Habitually grateful people pay attention to the good things in their lives, recognize other people's efforts to help them, and express their appreciation.

Gratitude is associated with a variety of physical and psychological benefits. First, it feels good. As a positive emotion, feeling grateful is inherently pleasant and is linked to other positive emotions such as joy and contentment (McCullough et al., 2001). Second, gratitude tends to motivate people to behave prosocially, which benefits both the helper and the recipients of help (e.g. Bartlett & DeSteno, 2006; Damon, 2008; McCullough, Emmons, & Tsang, 2002; Nowak & Roch, 2007). In addition to these short-term benefits, habitual gratitude is also linked to enduring physical, psychological, and social benefits. For example, people who are habitually grateful tend to exhibit better cardiovascular health, better immune functioning, lower stress levels, higher quality of sleep, are more satisfied with life (Emmons & McCullough, 2003; Hill, Allemand, & Roberts, 2013), tend to be more motivated in academic and professional contexts (Froh, Emmons, et al., 2010), and tend to have stronger interpersonal relationships and perceived social support (Algoe, Haidt, & Gable, 2008; Wood, Maltby, Gillett, Linley, & Joseph, 2008).

In sum, promoting gratitude is a viable route towards advancing human flourishing. In the following sections, we explain why it is particularly useful to promote gratitude during middle adolescence and early adulthood (ages 16–30). Next, we review existing strategies for fostering gratitude. Finally, we describe how the current investigation builds upon previous work to develop and refine tools for cultivating gratitude.

Developmental timing of gratitude interventions

Given the widespread benefits of practicing gratitude (e.g. Emmons & McCullough, 2003), it would be

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valuable for individuals to adopt this habit as early as possible and to continue to engage in it across the life span. At the same time, interventions are more likely to be effective when they target people who are developmentally prepared to engage in various aspects of gratitude.

There are two capacities that are essential to gratitude, and these develop during childhood. The first important skill is perspective taking, which refers to the ability to cognitively understand another person's *thoughts*. This capacity emerges during preschool and increases gradually across early and middle childhood (Birch et al., 2017; Piaget, 1959). The ability to take others' perspectives enables children to recognize people's intentions; they can distinguish behavior motivated by the desire to enhance one's own well-being from behavior motivated to promote another person's welfare. In addition to gaining insight into other people's thoughts, children also develop the ability to empathize, or imagine another person's emotional experiences. Individuals who practice empathy understand how another person *feels* (Hoffman, 2000). Empathic abilities enhance an individual's understanding of what others sacrifice to help them, which can intensify feelings of gratitude (Graham, 1988; Nelson et al., 2013). Thus, although most children are taught to say, 'thank you' as soon as they can speak, the skills needed to experience genuine gratitude develop gradually across childhood (Graham, 1988; Hoffman, 2000; Piaget, 1959). This means that most individuals are developmentally prepared to practice gratitude by adolescence.

Although several studies have sought to foster gratitude among adults, few have targeted adolescents. One goal of the current work was to fill this gap. In addition, we aimed to develop an intervention that is both effective and easy to disseminate widely. In the next section, we review existing gratitude interventions that informed these goals.

Intervention content

There are three main approaches that have shown efficacy in fostering gratitude. These involve encouraging grateful reflections, interpretations, or expression (see Froh, Kashdan, Ozimkowskia, & Miller, 2009, for a more extensive review). Below we describe each approach and present evidence on the specific conditions under which they have been tested.

Reflection

One effective method for enhancing gratitude is to encourage people to spend a few minutes each day reflecting on the good things in their lives. This practice can evoke positive emotions in the moment and facilitate habitual grateful thinking (Watkins, Woodward, Stone, & Kolts, 2003). The most prominent strategy for encouraging grateful reflection is the 'Three Good Things' activity. This exercise instructs individuals to reflect on and write about three good things that happened during the day and the causes of those events. This activity, tested with a sample of college students (Emmons & McCullough, 2003), enhanced participants' well-being. The researchers reasoned that practicing gratitude helps people direct their attention toward positive things and reduces negative feelings such as envy and greed.

Based on the efficacy of the Three Good Things activity in cultivating well-being and gratitude, several studies have tested different forms of this activity. One such study tested a version of the intervention with young adolescents (ages 11–14; Froh, Sefick, & Emmons, 2008). The researchers randomly assigned 11 classrooms of 6th and 7th graders (N = 221) to one of three conditions: gratitude, hassles, or no treatment for two weeks. Participants in the gratitude condition were instructed to write about up to five good things that happened each day, while participants in the hassles condition wrote about daily annoyances, and participants in the control condition performed their regular activities. In comparison to the other groups, people who wrote about good things exhibited higher levels of gratitude, optimism, life satisfaction, school satisfaction, and lower levels of negative affect after completing the intervention. Additional research suggests that the effects of this activity are greater when people are intrinsically motivated to complete it and when they continue to practice gratitude across longer periods of time (Sheldon & Lyubomirsky, 2006). Other studies indicate that removing the writing component can also enhance the effects of this activity because the process of writing can interfere with people's ability to reflect (Lyubomirsky, Sousa, & Dickerhoof, 2006; Watkins et al., 2003). Taken together, these findings suggest that reflecting on good things is likely to boost grateful thinking and feelings among children, adolescents, and adults, although it has not yet been tested with late adolescents (ages 16–18).

Grateful interpretations

A second promising strategy for fostering gratitude in young people is training them in benefit appraisals (Froh et al., 2010). Benefit appraisals refer to the process of recognizing three key aspects of helping behavior. First, benefit appraisals draw an individual' attention to the benefit accrued to the recipient of the helping behavior. For example, when a mother drives her daughter to soccer practice, the daughter benefits by being able to attend the practice, and perhaps by

avoiding alternatives such as walking or finding a ride from someone else. Second, benefit appraisal highlights the cost to the helper, such as money, time, or effort. In the example above, driving her daughter costs the mom time, energy, and gas. Finally, benefit appraisals encourage individuals to focus on people's intentions for helping them. For instance, a daughter may recognize that her mother drove her to practice because she cares about her and wants to support her.

A relatively recent study tested an intervention designed to teach benefit appraisals. In this study, children (ages 8–11) were randomly assigned to either participate in lessons about the personal value of kind actions or gifts, the altruistic intention of the benefactor, and the cost to the benefactor in terms of time or effort; or lessons that focused on discussing daily events. Both curricula involved class discussions, role-playing activities, and writing assignments. Lessons were completed each day during class for one week. Compared to participants who focused on daily events, participants in the Benefit Appraisals condition exhibited higher levels of grateful feelings, positive affect, and more grateful behavior, which was operationalized by the number of 'thank you' cards written for an event (Froh et al., 2014). The researchers proposed that Benefit Appraisals can deepen individuals' appreciation for other people's acts of kindness, thereby enhancing people's grateful thoughts and feelings. This activity has not yet been tested with adolescents or young adults.

Grateful behavior

A third route to fostering gratitude is to encourage people to express gratitude towards others who have helped them. For instance, in a study of young adults, participants were randomly assigned to express gratitude with a partner, think about why they were grateful for their partner, or discuss a positive memory with a partner for three weeks. Results showed that, on average, people in the gratitude expression condition reported higher positive regard for their partners and were more willing to help their partners than those in the other two conditions (Lambert, Clarke, Durtschi, Fincham, & Graham, 2010).

One strategy that is particularly useful for encouraging grateful expression is the 'Gratitude Letter' activity. The original study, tested with adults, indicated that writing and delivering a gratitude letter led to increased happiness. Even more impressive, these effects were still evident one month after the intervention (Seligman, Steen, Park, & Peterson, 2005). This study was replicated with children and adolescents (ages 8–19). In the study, participants were randomly assigned to either write and deliver a gratitude letter or write about daily events. For youth with low affect, writing a gratitude letter increased gratitude and positive affect immediately and 2 months later (Froh et al., 2009). In short, asking people to express gratitude – especially with a gratitude letter – tends to increase grateful feelings as well as more generalized positive affect and happiness, and effects have been found with children, adolescents, and adults.

Integrating strategies

Although several strategies show promise in fostering gratitude, no studies to our knowledge have compared their effects to one another. This information could be useful in prioritizing which activities are implemented, if time and resources are limited. Additionally, it is important to note that each of these strategies seeks to foster different aspects of gratitude. The Three Good Things draw people's attention to people and things for which they are grateful; Benefit Appraisals help people reflect more deeply on the reasons they are grateful for others; and the Gratitude Letter encourages people to express their gratitude. Given that each of these activities addresses a different step in the process of being grateful, these strategies might work best when implemented together.

Present studies

The purpose of this investigation was to build upon prior work to develop effective tools for fostering gratitude among adolescents and young adults. In the first study, we evaluated the effects of three activities designed to promote gratitude. The goals were to test an online version of the Three Good Things and Gratitude Letter activities (Emmons & McCullough, 2003; Froh et al., 2008; Seligman et al., 2005); to test whether Benefit Appraisals activity that was previously tested among children would also be efficacious among adults (Froh, Bono et al., 2010); and, to compare the effects of each of these activities. Because each activity effectively promoted unique aspects of gratitude, we combined them to create a comprehensive intervention. We then tested an online version of the full intervention with young adults (ages 18–30; Study 2) and an in-person version of the full intervention with adolescents (ages 16–18, Study 3).

Study 1

The goal of this study was to test and compare the effects of three individual gratitude-fostering activities with a sample of young adults. We selected these

strategies because they were supported by prior theory and empirical data (e.g. Emmons & McCullough, 2003; Froh et al., 2014; Seligman et al., 2005). We hypothesized that participants who completed the gratitude activities (Three Good Things, Benefit Appraisals, and Gratitude Letter) would experience stronger increases in gratitude than people who completed a memorization activity. In addition to examining overall gratitude scores and scores on gratitude subscales, we also utilized qualitative data to gain deeper insight into how each activity influenced gratitude.

Method

Participants

The sample consisted of 144 U.S. young adults recruited from Amazon's Mechanical Turk (MTurk). We recruited from this participant pool because MTurk workers tend to be relatively representative of the U.S. population – albeit slightly more Liberal – and have been shown to provide reliable data (Azzam & Jacobson, 2013; Casler, Bickel, & Hackett, 2013; Goodman, Cryder, & Cheema, 2013). A power analysis using G*Power indicated that this sample size would provide adequate power (95%) to detect small to large effect sizes between two timepoints and across four groups (Faul, Erdfelder, Lang, & Buchner, 2007). Participants' ages ranged from 18 to 30 years old (M = 25.58, SD = 2.58). There were 48% males and 52% females. Most participants were Caucasian (72%), and others were Hispanic/Latino (10%), Asian (10%), African American (6%), or more than one ethnicity (2%).

Materials

Activities

All activities were completed individually online. Each gratitude activity was prefaced with a brief introduction to gratitude (e.g. 'This activity is about gratitude, which refers to thoughts and feelings that people experience when they think about the good things in their lives and recognize how other people help them'). This was included to ensure that participants understood the term before engaging with it further.

Three good things. Participants watched a video that described gratitude and presented a study on the effects of practicing gratitude (Emmons & McCullough, 2003). They were then asked to reflect on things they are grateful for and write about why they were grateful for those things. This activity represents an abbreviated version of the Three Good Things exercise, which has induced well-being in previous studies (Emmons & McCullough, 2003; Froh et al., 2008; Seligman et al., 2005).

Benefit appraisals. Participants read the following message: 'Research shows that recognizing the thought and effort that other people put into helping you tends to enhance grateful feelings. Specifically, it is helpful to notice: (1) Benefits – how much someone's action helped you; (2) Costs – the time, money, or effort that a person sacrificed to help you; and (3) Intentionality – the fact that someone helped you on purpose.' Next, participants were asked to read a comic strip depicting a basketball player who allows his teammate to borrow his shoes for a game. They answered questions about the costs, benefits, and intentions involved in this example of a prosocial behavior. After that, they were asked to describe an instance in which another person helped them and discuss the costs, benefits, and intentions in this example. Finally, participants were encouraged to consider these factors when someone helps them in the future. This activity was modeled after previous benefit appraisal intervention research (Froh et al., 2010), but was condensed considerably to match the timing of the other activities.

Gratitude letter. Participants watched a video explaining the value of expressing gratitude and showing examples of how writing and delivering a gratitude letter can be meaningful for the author and recipient. Participants were then asked to write a gratitude letter of their own. They were encouraged to be honest, authentic, and specific in what they wrote. After this, a prompt urged them to share it with the recipient. This activity was based on a gratitude letter exercise used in prior work (Froh et al., 2009; Seligman et al., 2005; Toepfer & Walker, 2009).

Memorization activity. Participants read about a memorization strategy that involved using a mnemonic device to remember a list of words. For example, participants were encouraged to associate the word 'sun' with number 'one' word because the two words rhyme and to remember that 'eyes' is the second word because people have two eyes. They read a list of words and were asked to recall the ordered list on the next page. After completing this example, participants were encouraged to use the strategy for remembering things in the future.

Measures

A brief survey was administered before and after the intervention.

Gratitude. The gratitude, resentment, and appreciation test, short form (GRAT-SF; Thomas & Watkins,

2003) was used to measure gratitude. Respondents indicated the extent to which they agreed with 16 statements, which reflected three subscales: a lack of deprivation (e.g. 'I really don't think that I've gotten all the good things that I deserve in life,' reverse scored), simple appreciation (e.g. 'I think it's important to enjoy the simple things in life'), and appreciation for others (e.g. 'I feel deeply appreciative for the things others have done for me in my life'). Items were rated on a 7-point Likert scale, with response items ranging from 1 (*Strongly disagree*) to 7 (*Strongly agree*). This measure has demonstrated good internal consistency (α = .92) in previous work (Thomas & Watkins, 2003) and in the current study (α = .87). It has also exhibited convergent validity with spirituality and materialism in prior work (Diessner & Lewis, 2007).

Activity feedback. Participants were asked, 'How did completing the activity influence your thoughts and feelings (if at all)?' They were given a text box to write their responses.

Demographics. Participants were asked to report their gender, age, and ethnicity, which were used to describe the sample.

Attention check. An additional item was embedded in the GRAT scale (only in the posttest) to evaluate whether participants were paying attention. This item instructed participants to 'Please select 1 for this item.' This use aligns with recommendations for ensuring data quality for online surveys (Berinsky, Margolis, & Sances, 2014).

Procedure

We conducted a pretest-posttest experimental design. An invitation to participate in the study was posted on MTurk.com. Based on the finding that merely being told that participating in the current study can lead to increased well-being scores (Seligman et al., 2005), all participants were told that this study was testing the effectiveness of activities designed to enhance well-being. People who clicked on the link were directed to the survey, which was posted on Qualtrics.com. After providing consent, all participants completed the pretest survey. Next, participants were randomly assigned to one of four groups. The first three groups completed two of the three gratitude activities. We assigned two activities rather than one to extend the time between completing the pre- and post-tests. We varied which two gratitude activities each group took so we could make inferences about the effects of individual activities Accordingly, Group 1 completed the Three Good Things and Benefit Appraisals activities; Group 2 completed the Benefit Appraisals and Gratitude Letter activities; and Group 3 completed the Three Good Things and Gratitude Letter activities. Meanwhile, Group 4 – which served as the control condition – completed activities about memorization strategies. Finally, all participants filled out the posttest survey. Participants took approximately 21 minutes to complete the entire study (median across all conditions). They were paid $2.50 for their time. Composite scores were created for the GRAT. Next, we conducted mixed model ANOVA to evaluate differences in gratitude across time (pretest, posttest) and condition (groups 1–4). Estimated marginal means were used to make pairwise comparisons. Qualitative responses were content analyzed to identify themes in how people felt the activities influenced them.

Results

Preliminary analyses

The original sample included 147 cases. One person failed the attention check ('select 1') and two people provided nonsense responses to activity prompts (e.g. 'aasdsme'), so these cases were removed from analyses. There were no other suspicious or missing data. Among the remaining sample, roughly a quarter were assigned to each group: There were 48 people in Group 1 (33%), 31 in Group 2 (22%), 26 in Group 3 (26%), and 39 in the control group (27%). Gratitude scores were relatively normally distributed, M = 6.41, SD = 2.73, *Skewness* = .03, *Kurtosis* = −1.51. Data included in the mixed model ANOVA satisfied the sphericity assumption (based on Maulchy's tests, all p values > .05).

Gratitude changes

First, we analyzed changes in overall gratitude scores. There was a significant interaction between time and condition, $F(3, 140) = 5.80$, $p < .01$. Between the pretest and posttest, gratitude increased significantly for people in Group 1 ($M_{change} = .34$, $p < .001$), Group 2 ($M_{change} = .38$, $p < .001$); and Group 3 ($M_{change} = .48$, $p < .001$), p < .001, but not for individuals in the Control group ($M_{change} = .06$, $p = .42$). See Table 1 for descriptive statistics for each time point and condition.

To gain a more nuanced understanding of gratitude differences, we also examined differences across time and

Table 1. Study 1 gratitude changes by condition.

	n	Pretest *M*(*SD*)	Posttest *M*(*SD*)
Group 1	48	5.19(.13)	5.53(.14)
Group 2	31	5.30(.16)	5.68(.18)
Group 3	26	5.32(.18)	5.80(.19)
Control group	39	5.20(.14)	5.26(.16)

Table 2. Mean changes from pretest to posttest.

	Study 2 Young Adults (ages 18–30)		Study 3 Adolescents (ages 16–18)	
Outcome	Gratitude (n = 74)	Control (n = 54–70)	Gratitude (n = 52)	Control (n = 53)
Gratitude	.21*	−.04	.75***	−.73***
Hope	.16	−.63***	.15^{+}	−.13
Prosocial intentions	.19*	−.70***	.08	−.33

Notes. ^{+}p = .06, *p < .05, **p < .01, ***p < .001; Study 3 changes reflect a smaller range of response options: items were presented on a 7-point Likert scale for Study 2 and a 5-point Likert scale for Study 3

conditions on subscales of gratitude (lack of deprivation, simple appreciation, and appreciation for others). All three experimental groups demonstrated significant increases in all aspects of gratitude from the pretest to the posttest (mean changes ranged from .29 to .55, all p values < .01), whereas the control group did not (mean changes ranged from .01 to .12, all p values > .05). There was a significant interaction between time and condition in determining scores on lack of deprivation, $F(3, 140) = 4.78$, $p < .01$, and appreciation for others, $F(3, 140) = 3.44$, $p < .05$, such that changes in the experimental groups were significantly larger than those exhibited in the control group. There was not a significant interaction between time and condition for simple appreciation, $F(3, 140) = .99$, $p = .40$.

Qualitative feedback

Analyses of the qualitative responses revealed several interesting themes. First, there was evidence that the three gratitude activities sparked grateful thinking and feelings. Approximately half the participants from each gratitude condition (48%) described the activities as enhancing grateful thinking. For example, one respondent said, 'Completing this activity did get me thinking about how truly good my life is, how many things I am grateful for, and how the world around me isn't so bad.' Similarly, 43% of participants who completed the gratitude activities reported that it induced a positive emotional state. These included descriptions, such as: 'It made me a little lighter inside,' 'It made me have a butterfly feeling in my heart,' and 'I am in a much better mood and feel much more positive than when I originally started.' Analyses also revealed that some of the activities influenced behavioral intentions: 19% of people who completed the Gratitude Letter and 7% of people who completed the Benefit Appraisals reported that the experience inspired them to express gratitude. For example, one person wrote, 'I want to let my partner know that I appreciate him more than anything.' Similarly, another said, 'I sent the thing to my sister and it made me so happy. I'm thinking about my mortality and how we're only here for a limited time, so it's important to tell people exactly how important they are to you.' Some people even expressed gratitude within their response. For instance, one person wrote, 'This activity is amazing. Thank you for doing this.' Another wrote the following:

> After a stressful week, this survey opened my eyes and for the first time this week I feel happy and grateful/ Thank you to the creators, you don't know how much better I feel. I am so grateful for all the ones in my life and everything I have. Thank you.

> Gratitude expression was not mentioned by individuals in the control group.

A third notable finding was that, although participants' responses to the gratitude activities were overwhelmingly positive, a small subset of people (6%) described negative outcomes. For example, one respondent explained, 'While I'm grateful and glad that people have helped me it makes me feel a bit guilty.' For others, it even evoked sadness. One person wrote, 'The video made me feel sad because I don't have the wonderful, close relationships with others that the people in the video seemed to have.'

Study 1 discussion

The goal of this study was to evaluate the efficacy of each individual strategy for increasing gratitude. The main finding from this study was that completing the gratitude activities led to significant increases in gratitude from the pretest to the posttest, and that these increases were significantly greater than gratitude changes reported by the control group. The qualitative analyses also support the conclusion that completing the activities fostered gratitude. Furthermore, they indicated that the activities might encourage slightly different aspects of gratitude. For example, the gratitude activity was more likely than the Benefit Appraisals to motivate grateful expression, including intentions to express gratitude, reports that participants expressed gratitude (e.g. delivered the gratitude letter), and actual behavior (e.g. saying 'thank you' to the researchers). This reaction did not emerge in the responses from people who completed the Three Good Things activity. It was also useful to note that there were a handful of people who reported experiencing negative emotions (feeling sad or guilty) while completing the activities. Similar findings (feeling guilty or embarrassed) were reported in a study of similar gratitude activities (Layous, Sweeny, Armenta, Na, Choi, & Lyubomirsky, 2017). Altogether the results of this study support the notion that the activities each promoted gratitude, although they might target slightly different aspects of

gratitude. Based on these results, we combined the three activities to create an integrative intervention. The goal of the subsequent studies was to evaluate the efficacy of this intervention in cultivating gratitude.

Study 2

The purpose of Study 2 was to test the efficacy of the full intervention in fostering gratitude among young adults (ages 18–30). Based on the findings of each individual activity in Study 1, we hypothesized that people who participated in the intervention would demonstrate higher levels of gratitude from the pretest to the posttest. Given that the main goal was to assess effects on gratitude, we also measured two constructs that have been identified as immediate outcomes of gratitude. First, previous studies show that practicing gratitude often draws people's attention towards the good things in their lives, and therefore, boosts people's senses of hope that they will enjoy more positive experiences in the future (Witvliet, Richie, Luna, & Tongeren, 2018). Additionally, reflecting on how other people have helped oneself often triggers a desire to give back – both to specific people who have helped one in the past, and to the world more generally. Accordingly, experiencing gratitude has been shown to motivate prosocial intentions (Bartlett & DeSteno, 2006; Damon, 2008; McCullough, Emmons, & Tsang, 2002; Nowak & Roch, 2007). Based on these findings, we hypothesized that completing the intervention would lead to increased levels of hope and prosocial intentions.

Method

Participants

The sample included 144 young adults recruited from MTurk.com. A power analysis using G*Power indicates that this sample size is sufficient for detecting effect sizes similar to those found in Study 1 (Faul et al., 2007). Participants' ages ranged from 18 to 30 years old (M = 25.85, SD = 3.03). There were slightly more females (55%) than males (43.5%), and there were two androgynous individuals (1.5%). Participants were primarily Caucasian (69%) and remaining participants were African American (12.5%), Hispanic/Latino (9%), Asian (5.5%), or more than one ethnicity (4%).

Materials

Activities

Participants in the gratitude condition watched the introduction video and completed the three gratitude activities from Study 1. Participants in the control condition completed the memorization strategy activity from Study 1 as well as two additional activities about memorization. The first involved visualizing information in specific locations to help recall it more accurately. The second asked people to practice using music and stories to help remember pieces of information. Both the gratitude and control activities took approximately 15 minutes (median) to complete.

Measures

Gratitude. The GRAT-SF (Thomas & Watkins, 2003), described above, was used again to assess gratitude. It demonstrated strong internal consistency for this study (α = .92).

Hope. Hope was measured using the 6-item Children's Hope Scale (CHS; Snyder et al., 1991). Participants were asked to read items such as, 'When I have a problem, I can come up with lots of ways to solve it.' Each item was rated on a Likert scale ranging from 1 (*Strongly disagree)* to 5 (*Strongly agree)*. The measure demonstrated good internal consistency in previous studies (α = .83; Valle, Huebner, & Suldo, 2004) as well as this study (α = .92).

Prosocial intentions. The prosocial behavioral intentions scale (Baumsteiger & Siegel, 2018) was used to assess participants' intentions to help others in the future. Items include comforting someone, helping a stranger find something they lost, helping to care for a sick friend or relative, or assisting a stranger with a small task. Each item was rated on a 7-point Likert scale, with response options ranging from 1 (*Definitely would not do this*) to 7 (*Definitely would do this*). In studies with MTurk samples, the PBIS exhibited adequate internal consistency (α = .80–.82); convergent validity with moral identity (r = .50–.55), past prosocial behavior (r = .52–.51), and materialism (r = −.25); and predicted which people completed additional survey questions for no payment (Baumsteiger & Siegel, 2018). It also exhibited good internal consistency in this study (α = .84).

Attention check. As with Study 1, an item ('Please select 1') was embedded in the GRAT scale to assess whether participants were paying attention.

Procedure

This study utilized a pretest-posttest experimental design. A description of the study was posted on MTurk.com. People who clicked on the link were taken to a survey on Qualtrics.com. After providing consent, all participants completed the pretest survey, which

included measures of gratitude, hope, prosocial intentions, and demographic questions. Next, participants were randomly assigned to the intervention group, control group, or to a third group, which was used as a part of another study. The intervention group completed three activities about gratitude whereas the control group completed three activities about memorization strategies. A link to each activity was sent out one at a time each day for three consecutive days via email. The day after each participant completed the third activity, they received a link to the posttest survey, which included measures of gratitude, hope, and prosocial intentions. Participants who completed the pretest, posttest, and all activities were compensated $9.00. Composite scores were created for the main constructs. Mixed model ANOVA were used to test whether there were significant differences in gratitude, hope, and prosocial intentions across time (pretest, posttest) and condition (gratitude, control).

Results

Preliminary analyses

All participants who completed the pretest and posttest passed the attention check, so all 144 cases were retained for analyses. Approximately half (51%) the participants were assigned to the gratitude group and half (49%) to the control group. Data were normally distributed across the main variables, including gratitude (M = 5.14, SD = .72), hope (M = 3.40, SD = .81), and prosocial intentions (M = 4.31, SD = .66), with skewness ranging from −.98 to 1.10 and kurtosis ranging from −.06 to 1.13. There were no apparent outliers. Data used in the mixed model ANOVA satisfied the sphericity assumption (based on Maulchy's tests, all p values > .05). See Table 2 for an overview of pretest-posttest changes in each outcome by condition.

Gratitude

There was a significant interaction between time and condition, $F(1, 126) = 5.53$, $p < .05$. People in the gratitude condition increased significantly in gratitude from the pretest and posttest ($M_{change} = .21$, $p < .05$), whereas people in the control group did not exhibit significant changes ($M_{change} = .04$, $p = .67$), p < .001.

Hope

There was a significant interaction between time and condition, $F(1, 126) = 30.17$, $p < .001$. People in the control condition decreased significantly in hope from the pretest and posttest ($M_{change} = -.63$, $p < .001$), whereas people in the gratitude group did not exhibit significant changes ($M_{change} = .16$, $p = .08$).

Prosocial intentions

There was a significant interaction between time and condition, $F(1, 126) = 48.37$, $p < .001$. People in the gratitude condition increased significantly in prosocial intentions from the pretest and posttest ($M_{change} = .19$, $p < .05$), whereas people in the control group decreased significantly ($M_{change} = -.70$, $p < .001$).

Study 2 discussion

As hypothesized, people who completed the gratitude activities increased in gratitude and prosocial intentions, whereas people in the control group did not. Similarly, people who did not complete the intervention were significantly more likely than people who did to exhibit declines in hope between the pretest and posttest. This indicates that the gratitude intervention may have prevented a drop in people's feelings of hope that otherwise would have occurred. These findings align with the results of Study 1, which provided evidence that the activities in the intervention effectively foster gratitude among young adults. Next, we investigated whether the intervention would be effective for a slightly younger population.

Study 3

The purpose of this study was to evaluate the efficacy of the full intervention for adolescents (ages 16–18). This age group tends to be similar to young adults in terms of cognitive abilities related to gratitude such as memory, critical thinking, future thinking, and perspective taking – albeit slightly less developed (Dumontheil, 2014). Therefore, we expected these activities would cultivate gratitude similarly for this group. More specifically, we hypothesized that participants who completed the gratitude activities would demonstrate significant increases in gratitude, hope, and prosocial intentions, whereas participants who completed the control activities would not.

Method

Participants

All participants (n = 105) were juniors and seniors attending public high schools in Southern California. This sample size was chosen because it would provide sufficient power to detect effects that were similar to those found in Study 2, which involved the same study design and statistical analyses (Faul et al., 2007). Given that participants completed the study in close proximity to one another, we believed it was likely that students would talk to each other

about the activities during the study, which could influence the outcomes. Therefore, rather than randomly assigning individuals within the same class to different conditions, we assigned conditions by class. We attempted to match classes by demographic characteristics. For instance, the experimental group included 52 participants, ages 16 to 18 (M = 17.17, SD = .56). Approximately two thirds were female (67%), and the other third were male (33%). Many participants (39%) were Caucasian, 23% were Asian, 21% were Hispanic, and 17% were of mixed race/ethnicity. The control group included 53 participants, ages 16 to 18 (M = 16.53, SD = .71). Again, approximately two thirds were female (61%) and the other third were male (39%). Many participants (35%) were Caucasian, 26% were Hispanic/Latino, 13% were Asian, 10% were African American, 7% were Middle Eastern, and 10% were more than one race/ethnicity.

Materials

Intervention

The intervention from Study 2 was implemented with one main modification: rather than have participants complete activities individually through an online survey, a member of the research team presented the gratitude activities to the group during class. This modification was made for two reasons. First, for this school, it was more feasible to present the materials to the group than it was to obtain laptops for all students, provide login information, etc. Second, this format enabled researchers to gauge students' reactions to the materials firsthand and to compare the effectiveness of activities presented in an online format to a more interactive format. Despite this format change, the activity content was the same; participants received identical information, watched the same videos, and responded to the same prompts as the online version. The only exception was the Benefit Appraisals, in which the order of the explanation and application were flipped. Instead of reading about the components of benefit appraisal and then applying them to an example, participants were asked to consider an example and identify the key components themselves. They then received the same information that online participants received at the beginning of the activity. This modification served to take advantage of the classroom structure to facilitate discussion among students.

Measures

The surveys included the gratitude measure and attention check item from Study 1, and the measures of hope and prosocial intentions from Study 2, which all exhibited adequate to good internal consistency in this study (α = .67, .71, and .80, respectively). Because this sample was slightly younger than participants in the first two studies, we shortened the response options from 7- to 5-point Likert scales to decrease the cognitive load needed to complete the surveys. Due to the age difference between the current sample and the sample in Study 1, we also used qualitative questions to evaluate how completing the activities influenced participants. These questions asked participants to think about the activities overall and describe (a) What they liked most, (b) What they would change, and (c) What they learned, if anything, from completing them. Each question was followed with a blank text box.

Procedure

We employed a pretest-posttest quasi-experimental design. After obtaining parental consent and participants' assent, all students completed the pretest surveys, which included measures of gratitude, hope, prosocial behavior, and demographic questions. Next, participants in the experimental condition engaged in the gratitude activities. These were completed on three days within one week (Thursday, Friday, and the following Tuesday). Alternatively, participants in the control condition completed online activities about memorization strategies. These were also completed across three days. Finally, students in both groups took the posttest, which included measures of gratitude, hope, and prosocial intentions. The experimental group was also asked to complete qualitative questions about their experience completing the gratitude activities. As a thank you for participating, we gave teachers from each class a $100 gift card to purchase a classroom gift. Data analyses were similar to Study 2: we computed composite scores for measures of gratitude, hope, and prosocial intentions. Next, we used mixed model ANOVA to assess differences in gratitude, hope, and prosocial intentions across time points (pretest, posttest) and conditions (gratitude, control). Finally, qualitative responses were content analyzed to evaluate how people experienced the activities.

Results

Preliminary analyses

There were originally 109 participants who completed the pretest and posttest. Prior to analyses, we deleted data from four individuals who failed the attention check. There were no missing data, so all remaining cases were retained. The distributions were relatively normal for measures of gratitude (M = 3.19, SD = .61), hope (M = 3.66, SD = .78), and prosocial intentions

(M = 4.28, SD = .79), with skewness ranging from −1.19 to .09 and kurtosis ranging from −.97 to .90. There were no apparent outliers. The data used in the mixed model ANOVA satisfied the sphericity assumption (based on Maulchy's tests, all p values >.05). Therefore, the data satisfied the assumptions required for the subsequent analyses.

Gratitude

There was a significant interaction between time and condition, $F(1, 103) = 169.89$, $p < .001$. People in the gratitude condition increased significantly in gratitude from the pretest and posttest ($M_{change} = .75$, $p < .001$), whereas people in the control group decreased significantly ($M_{change} = -.73$, p < .001).

Hope

The interaction between time and condition was trending towards statistical significance, $F(1, 73) = 3.83$, $p = .05$. People in the gratitude condition exhibited increases in hope between the pretest and the posttest, and this change was trending towards statistical significance, ($M_{change} = .15$, $p = .06$). On the other hand, people in the control group did not display significant changes ($M_{change} = -.13$, $p = .29$).

Prosocial intentions

There was not a significant interaction between time and condition, $F(1, 56) = 3.02$, $p = .09$. There were no significant pretest-posttest changes in prosocial intentions in either the gratitude condition ($M_{change} = .08$, $p = .08$), or the control condition ($M_{change} = -.33$, $p = .14$).

Qualitative feedback

Approximately 90% of participants responded to the questions about what they learned from the activities. Multiple raters judged that all responses were positive in nature and revealed several themes. These themes are described in more detail below. The percentages reported reflect the number of people who wrote about each theme based out of the number of people who completed the gratitude activities (n = 52).

Grateful thoughts and feelings. The most common theme was that participants (62%) reported that completing the activities focused their attention on good things in their lives. More specifically, people wrote things such as, 'They allowed for me to open my eyes to the blessings I took for granted,' 'I've always taken things such as clothing, school materials, and even the desks I sit in for granted. These activities helped me become more aware and appreciative of the things I have,' and, 'They made me step back and think about what I am grateful for in my life.'

Gratitude for other people. Next, many participants (37%) commented that these activities helped them feel more grateful towards other people. For example, someone said, 'I liked how it made me think about the good things in my life rather than focusing on stressful things, and realize how much others sacrifice to help me accomplish things.' Another person wrote:

> …even though life is kind of hard right now, I was able to get my mind off of it and really appreciate what I have and the people in my life. I learned that the people in my life have REALLY affected my life and I should be grateful for even the littlest things they do for me.

Grateful behavior. In addition to helping people *feel* grateful, many (35%) talked about how the activities helped them realize the value of *expressing* their gratitude. For instance, someone wrote, 'Before these activities I already think about what's important to me and who I want to express gratitude for but I never expressed them out loud and after I tried it once I felt like a happier person.' Similarly, another participant said, 'I liked that I got to express how I feel about my life at the moment which is something I don't do that often.'

Realization that gratitude enhances happiness. The majority of participants (39%) wrote that completing the activities helped them understand how gratitude can contribute to their happiness. For example, one person wrote, 'I learned that it's important to be grateful in life because happiness doesn't come from having more, it's about appreciating what you already have.' Another participant stated that they learned 'That enacting gratitude in your life is a way to enrich your life with happiness and you appreciate your world more by constantly reminding yourself.'

Life satisfaction. In addition to writing about gratitude, some participants (17%) also noted that completing these activities helped them feeling more satisfied with their lives overall. For example, on person reported, 'They made me realize that I have a lot of good in life and I need to focus more on that.' Similarly, one person said, 'I learned that taking time to think about all the good things in your life makes you realize that you do have a good life.'

Study 3 discussion

The main finding from this study was that, as hypothesized, people who completed the gratitude activities demonstrated significant increases in gratitude. These people also exhibited increases in hope that were trending towards statistical significance (p = .06), although they did not demonstrate significant changes in prosocial intentions. Analyses of qualitative data support the main quantitative finding and provided further detail into how the effects unfolded. More specifically, they indicated that the activities were effective in drawing young people's attention to the good things in their lives, helping them recognize the value of gratitude for their well-being, and motivating them to practice and express gratitude more frequently.

One limitation to this study is that participants in the experimental group attended a different school than participants in the control group. This means that the two groups could have answered survey questions differently based on pre-existing differences or events that occurred within their specific school communities. This issue is addressed, at least in part, by the pretest-posttest study design, which allows for a comparison of rates of change rather than simple differences between groups. To minimize these differences, we strived to match participants in the experimental and control group on as many relevant demographic variables as possible. For instance, students from both groups were juniors and seniors in high school, were about 60% female, came from similar ethnic backgrounds, and attended similar schools (e.g. public, mid-sized, located in suburban areas in the same county). Despite these measures, it is not certain that the changes that participants experienced across the study were not influenced by pre-existing differences or external events. Nonetheless, findings from this study indicate that the integrative intervention can help adolescents feel and act more gratefully.

Main discussion

The goal of these studies was to create and test tools for fostering grateful thinking, feeling, and behavior among adolescents and young adults. The results of Study 1 supported previous research that gratitude can be fostered by reflecting on good things (Emmons & McCullough, 2003; Froh et al., 2008; Seligman et al., 2005) and expressing gratitude (Froh et al., 2009). It also provided the first empirical data (to our knowledge) to support the notion that considering the costs, benefits, and intentions involved in helping behavior can enhance gratitude among young adults (Froh et al., 2010). Findings from Studies 2 and 3 offer evidence that completing all three of these activities can increase gratitude for adolescents and young adults, and that these activities are effective when implemented in both online and interactive formats. Overall, these data suggest that completing these activities can help adolescents think, feel, and behave more gratefully.

This intervention possesses several strengths that make it a useful tool for fostering gratitude. First, findings from Study 1 suggest that each individual activity can effectively increase gratitude. This is particularly impressive when considering that each activity took approximately 5 minutes to complete. At the same time, the full intervention – which still took less than 20 minutes for most people to complete – addresses multiple aspects of gratitude, including a focus on good things (Emmons & McCullough, 2003; Seligman et al., 2005), grateful interpretations (Froh et al., 2008), and the expression of gratitude (Froh et al., 2009). Thus, this approach combines the merits of previously developed activities to present a more comprehensive intervention. In addition to providing further insight into the individual and combined efficacy of these activities, this investigation also supplies evidence for two variations on its implementation: the intervention can be completed online, individually (Studies 1 and 2) or via paper-and-pencil in a classroom setting (Study 3). The online version may be especially useful for efforts to disseminate the activities widely because it does not require the presence of a trained facilitator. Furthermore, the online activities could be distributed to a wide array of people simply by sharing a survey link. Altogether, these activities are not only effective, but are also relatively convenient to implement.

This intervention could be useful for application across multiple contexts. For instance, it could be used in educational settings such as high school and college classrooms where there are relatively large numbers of adolescents who are attentive. This type of activity would align especially well with classes that focus on health, personal development, positive psychology, and future planning. Because these activities can be completed online, they could also be distributed by college counselors and other youth program administrators for students to complete on their own time. Given that practicing gratitude tends to ameliorate stress (Wood et al., 2008), this type of intervention could also be useful for clinical settings. For example, these activities could be incorporated into rehabilitative programs to help individuals cope with adversity. Finally, these activities could be distributed on self-help forums such as the University of California Berkeley's Greater Good in Action website, which

display information about positive interventions to the general public.

Although the current findings are promising, they should be interpreted within the context of the study limitations. Most importantly, many of the effect sizes in Study 2 and 3 were relatively small. This might indicate that the intervention simply had small effects. However, it could also reflect a methodological limitation. For instance, although we used measures that have been validated in prior work, it is possible that there was something about the survey itself (e.g. introductory text) or a methodological characteristic (e.g. timing of the surveys) prevented us from capturing the full effect of activities. Thus, it is possible that the intervention could engender a smaller or larger effect than what was indicated in this study. Additionally, the efficacy of the intervention may be limited to the samples included in these studies. Although we triangulated data across two populations (MTurk workers and high school students in Southern California), these groups do not reflect the characteristics of all adolescents and young adults. For instance, these samples included few people from Eastern cultures, who – as previous research indicates – tend to respond differently than people from Western cultures to certain gratitude interventions (Boehm, Lyubomirsky, & Sheldon, 2011). Altogether, testing this intervention in a different sample or with different measurement methods could reveal the extent to which the intervention effects extend beyond these studies.

The current findings elucidate several promising directions for extending the gratitude literature forward. First, as mentioned previously, it would be useful to replicate this work in different samples and with alternative methods to evaluate whether these findings reflect a more general pattern of responses to the gratitude intervention. Another fruitful direction is to examine whether the effects of this intervention endure, and if not, to then investigate whether incorporating additional strategies could help make these habits stick. Indeed, the ultimate goal of this work is to encourage people to develop the habit of practicing gratitude. Given the vast benefits of gratitude (e.g. Emmons & McCullough, 2003), advancing this line of research represents an opportunity to utilize science to promote human flourishing.

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