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The Effect of Gratitude and Compassion on Persuasion Processing

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Abstract

The present study investigated the relationship between two positive emotions (gratitude and compassion) and persuasion susceptibility. Participants were randomly assigned to be induced to feel gratitude or compassion and read either strong or weak arguments. Participants then rated how favorable they found the arguments. We hypothesized that participants feeling gratitude would be more easily persuaded than those feeling compassion, particularly in the weak argument condition. The hypotheses were not supported. In the strong argument condition, the gratitude and compassion groups were equally persuaded. In the weak argument condition, the compassion group was more persuaded than the gratitude group, though not significantly. Multiple limitations are addressed. The manipulation check indicated that the induction procedure for compassion was problematic. In addition, the arguments were perceived more negatively in the present study than in past studies. Future research should revise the induction procedure, include additional emotions, and pilot the use of less controversial arguments.

The Effect of Gratitude and Compassion on Persuasion Processing

Positivity opens us. The first core truth about positive emotions is that they open our hearts and our minds, making us more receptive and more creative.

-Barbara Fredrickson

Positivity is vital to all humans. Various businesses, such as *Life is Good*, have made a fortune touting the benefits of positive thinking. It is conventional wisdom that positive emotions allow for a happier, richer, and more fulfilling life. As highlighted in Fredrickson's quote, positive emotions can also help to open us up to new thoughts and ideas. For example, research has found that positive emotions lead to an increased amount of creative output (Langley, 2018). In the quote, Fredrickson also highlights the notion of receptiveness, which is defined as a willingness to consider or accept new suggestions and ideas (Merriam-Webster). Although positive emotions are associated with benefits like creativity, the receptiveness associated with positive emotions may lead to increased susceptibility to persuasive attempts. The present study explores the relationship between positive emotions and receptivity to an argument. Happy individuals are more likely to be excited and engaged with what others have to say. However, are some positive emotions more conducive to advice-taking than others? This question is tested on two specific positive emotions: gratitude and compassion.

Benefits of Positive Emotions

Consistent with conventional wisdom, recent research has shown support for the benefits of positive emotions (Armenta et al., 2020; Hazlett et al., 2021; Monroy et al., 2021; Reis, 2017). Positive emotions can contribute to overall physical well-being. For example, positive emotions were found to speed-up recovery from cardiovascular problems caused by negative emotions

(Tugade et al., 2004). In addition, increasing daily positive emotions led to more effective coping strategies during challenging times among immigrant farmworkers (Monroy et al., 2021). Positive emotions are also beneficial for mental health. Those who are more optimistic have improved mental health (Patnaik, 2013). Those who seek out positivity more often were found to experience more positive emotions and fewer depressive symptoms. These individuals may have more emotional resources, such as the capacity to adapt to changing environmental demands (Catalino et al., 2014). Therefore, positive emotions seem to help people recover from negativity, both physically and emotionally.

In addition to examining general positive emotions, researchers have also discovered that distinct positive emotions lead to positive outcomes. Specifically, gratitude and compassion are beneficial to well-being (Armenta et al., 2020; Hazlett et al., 2021; Monroy et al., 2021; Reis, 2017). Gratitude fosters a sense of unity and reciprocity and motivates prosocial behavior toward others. Compassion is a "self-transcendent emotion" that is important in helping humans connect and improve well-being (Fogarty, 2020). In psychology, the essence of gratitude involves pleasant feelings about benefits received. One criterion for gratitude is that it must be undeserved. The grateful person must recognize they did nothing to deserve the gift or benefit. Instead, it was freely given. In a philosophical sense, gratitude functions as a lifestyle aimed at attaining the good (Emmons & McCullough, 2004).

Similarly, compassion involves positive feelings toward another person. Compassion has been defined as an emotion evoked by the suffering of others. There are three requirements for compassion: (1) We must feel that the suffering evoking our feeling is serious; (2) the sufferer's troubles must not be self-inflicted, but the result of injustice; (3) we must be able to picture ourselves in the same plight (Cassell, 2009). Primarily, compassion is a process of connecting,

by identifying with another person. The identification that is generated motivates people to relieve the suffering of others (Cassell, 2009). Thus, compassion is a vital component in many fields, from medicine, to psychology, to any other helping profession (Cassell, 2009). Compassion gets at one of the basic principles of being human: helping others who need it.

There are various examples of the benefits of gratitude and compassion. Students who completed gratitude exercises every day reported greater life satisfaction and motivation at the end of the semester (Armenta et al., 2020). Additionally, women who were grateful for receiving support experienced health benefits, such as a reduction in inflammatory responses (Hazlett et al., 2021). Similarly, spouses have experienced greater happiness on days when they behaved compassionately toward their partners, or vice versa (Reis, 2017). Furthermore, greater compassion among first responders predicted less psychological distress and post-traumatic stress. Those who were more compassionate had greater personal accomplishment, resilience, and life satisfaction (McDonald, 2021). Taken together, these studies suggest that both gratitude and compassion have a positive effect on mental health.

Explaining Benefits of Positive Emotions

Why does positive thinking lead to these beneficial outcomes? According to the broaden-and-build theory, "positive emotions broaden attentional scope, or awareness, to facilitate knowledge-driven information processing" (Fredrickson, 2001, p. 219). Attentional scope is the extent to which an individual can attend to and process a range of different items at the same time. One area in which this has been studied is the own-race bias. The own-race bias is the propensity of people to recognize faces of people from their own race better than other races. This bias can be greatly reduced in people who are feeling positive emotions, presumably because their attentional scope has been broadened, allowing them to view faces more

holistically, thus reducing the bias (Johnson, & Fredrickson, 2005). In addition, positive emotions enable the effective building of personal resources. Learning a new language may be one of these resources. Researchers found that positive emotions have a large effect on language learners' motivation, learning, and achievement. Researchers argue that positive emotions widen students' awareness, helping to promote learning (Rahimi & Bigdeli, 2014). Further, positive emotions encourage "approach behavior", which motivates people to engage in their environments and explore new people, situations, and ideas. For example, joy creates the urge to play, interest to explore, contentment to savor, and love involves parts of each of these urges (Fredrickson, 1998). When people are open to new ideas, they broaden their horizons, helping them to learn and grow as individuals (Fredrickson, 2001).

According to the broaden-and-build theory, positive emotions encourage people to engage in a greater variety of actions, while negative emotions narrow or limit the number of actions in which people will engage by calling forth specific action tendencies (Fredrickson, 2001). Someone who is experiencing positive emotions may want to engage in various actions: adventure, play, laugh, etc. On the other hand, negative emotions may make one feel they have more limited options. For example, someone who is afraid may feel that their only option is to flee (Fredrickson, 2001). Thus, positive emotions broaden people's thought-action repertoires, or various thoughts connected to emotions. People achieve this broadening because they are introduced to more options for actions to take.

Motivation and arousal both seem to be key components in broadening attentional scope. Pre-established intrinsic motivation has been shown to increase the intensity of positive emotions. In return, positive emotions increase intrinsic motivation. Therefore, positive emotions seem to have a building effect, as they build the psychological resource of motivation (Lovoll et

al., 2017). Additionally, different arousal levels of positive emotions have different effects on thought-action repertoires (Sugawara & Sugie, 2021). High arousal emotions correspond to more heightened physiological activity. Individuals experiencing higher arousal positive emotions tend to have an increased heart rate and broadened thought-action repertoires compared to those experiencing low-arousal positive or neutral emotions. Additionally, there is a positive correlation between valence (positive or negative) and arousal and the amount of broadening that is produced by positive emotions (Sugawara & Sugie, 2021).

Furthermore, the broaden-and-build theory may explain the benefits associated with gratitude and compassion. Gratitude builds social and intellectual resources, which increases connectedness and meaningful life experiences. This contributes to subjective well-being. Consistent with this, changes in gratitude have been shown to lead to positive changes in subjective well-being (Liao & Weng, 2018). Researchers also emphasize the importance of compassion and post-traumatic growth (a positive psychological change arising from the experience of highly stressful life circumstances), particularly for sexual trauma therapists. Both post-traumatic growth and compassion serve as resources to help alleviate some of the secondary trauma afflicting trauma therapists (Samios, 2013). Therefore, gratitude and compassion both help to build personal resources to increase subjective well-being and the ability to deal with challenging circumstances.

Not All Positive Emotions Are the Same

In addition to expanding thought-action repertoires, the broadening of attentional scope associated with positive emotions may facilitate simple processing of messages. For example, people experiencing positive emotions are less likely to scrutinize information, and consequently, are more easily persuaded (Bless, et al. 1996). Even incidental emotions, or

emotions resulting from an unrelated prior event, may affect how receptive people are to persuasive attempts. For example, participants experiencing incidental gratitude were more likely to listen to advice than those experiencing incidental anger, or even those in a neutral state. In addition, incidental gratitude resulted in more trust between the advice-giver and the participants, which facilitated receptiveness to persuasion (Gino & Schweitzer, 2008).

However, not all positive emotions necessarily broaden attentional scope. Research suggests that other positive emotions may narrow attentional scope. For example, researchers have found that the positive experience of interest narrows, rather than broadens, attentional scope. Interest involves feeling alive and active with a high level of engagement and curiosity that promotes interaction with new information (Sung, & Yih, 2016). Consequently, people feeling interest are less able to attend to and process a lot of different ideas at once, unlike people feeling many other positive emotions. Furthermore, approach motivation reduces attentional scope, as well. Approach motivation is the impulse to go towards desired stimuli. When someone is experiencing approach motivation, they focus only on a desired stimulus and shut out irrelevant stimuli, narrowing their attentional focus (Gable & Harmon-Jones, 2008). Therefore, different positive emotions may work in opposing ways: they either increase or decrease the amount of systematic processing in which one engages.

Theorists, however, disagree on what may be causing these differences. Some argue these differences in processing are related to the function of an emotion (Griskevicius et al., 2010a). For example, the positive emotions of pride and contentment both broaden thought-action repertoires and build resources but motivate individuals to do so in domains specific to each emotion. When buying consumer products, pride increased the want for products that call attention to oneself (i.e., watches, fancy clothes), while contentment enhanced the wish for

products used in familiar and comfortable places, like at home (i.e., dishwashers, beds). Based on these findings, different positive emotions affect judgment differently (Griskevcius et al., 2010b).

Expanding on the idea that different positive emotions affect judgment in different ways, Griskevicius et al. (2010a) proposed a functional approach. Griskevicius et al. argue that the purpose of an emotion determines whether that emotion would be conducive to advice-taking. In an experiment, Griskevicius et al. induced participants to feel one of six different positive emotions: amusement, anticipatory enthusiasm, attachment love, awe, contentment, or nurturant love. Participants then listened to an argument that was purposefully unconvincing or relying on weak logic. Amusement, anticipatory enthusiasm, and attachment love produced increased acceptance of weak persuasive messages (Griskevicius et al., 2010a), which is consistent with the functional approach. Anticipatory enthusiasm increases one's focus on environmental benefits as well as one's reliance on heuristics, or mental shortcuts. Amusement allows individuals to let their guard down to signal social support, such as when playing. Attachment love is defined as feelings of love for a caregiver, who one feels trust and acceptance toward. Feelings of safety are associated with attachment love. Therefore, these scenarios all would likely cause less careful scrutiny of persuasive messages (Griskevicius et al., 2010a).

On the other hand, awe and nurturant love decreased the acceptance of weak persuasive messages (Griskevicius et al., 2010a). These findings also support Griskevicius's functional approach. Awe causes people to shift their awareness away from small concerns and toward current incoming information, increasing systematic processing. Nurturant love is defined as "feelings of love and concern for another's well-being" (Griskevicius et al., 2010a, p. 193). It causes the person experiencing the emotion to feel responsibility toward another and vigilance

against threats (Griskevicius et al., 2010a). Both feelings would likely increase awareness of one's environment and lead them to listen more carefully to persuasive messages. Essentially, the functional approach argues that whether one is persuaded or not depends upon the function of the emotion they are feeling.

In contrast to the functional approach, others propose a different model for determining how likely one is to be persuaded. de Hooge et al. (2014) argue that the likelihood of being persuaded can be predicted by the valence of the emotion, positive or negative, as well as the agency, i.e., whether the emotion is self-focused or other-focused. Self-focused emotions shift attention toward oneself, while other-focused emotions are more concerned with the appraisal of others in one's environment. Across many studies, de Hooge et al. found that the likelihood of advice-taking increased when people were feeling positive other-focused emotions or negative self-focused emotions and decreased when feeling positive self-focused emotions or negative other-focused emotions (de Hooge et al., 2014). Advice-taking is thought to increase when a participant is feeling a positive other-focused emotion because that emotion indicates that another person's skills and abilities are in line with the participant's own wishes (Haidt, 2003). On the other hand, advice-taking is thought to decrease when a participant is feeling a positive self-focused emotion because the emotion indicates that one's own abilities are in accordance with one's own standards. Therefore, participants feeling self-focused emotions will listen more to their own opinion than that of others (Tracy & Robins, 2004).

Thus, there are two schools of thought regarding the role of emotions in advice-taking. The functional approach argues that the specific function of the emotion determines whether individuals can be persuaded (Griskevicius et al., 2010a). On the other hand, the valence/agency

approach argues that valence and agency play a major role in the acceptance of persuasive messages (de Hooge et al., 2013).

The Present Study

The purpose of the present study is to expand on this previous work and to explore the relationship between positive emotions and their differing effect on persuasion processing (particularly the emotions of gratitude and compassion). The goal is to compare the functional approach with the valence/agency approach in explaining differences in persuasion processing. Griskevicius et al. (2010a) found that attachment love was associated with greater susceptibility to persuasive attempts. Attachment love manifests as feelings of love for a caregiver. Likewise, gratitude increases feelings of safety and leads to a lack of caution, just as someone might feel when with a caregiver. Additionally, gratitude is an "other" focused emotion. Thus, both the functional approach and valence/agency approach would predict that gratitude would reduce systematic processing and increase susceptibility to persuasive attempts (Griskevicius et al., 2010a; de Hooge et al., 2014).

Compassion is an interesting emotion to explore, due to the differing views of Griskevicius et al. (2010a) and de Hooge et al. (2014). Compassion is like nurturant love. Nurturant love manifests as feelings of love for another's well-being. Thus, compassion, like nurturant love, may increase feelings of responsibility, as when a caregiver feels responsible for the person to which they are tending (Griskevicius et al., 2010a). Therefore, functional approaches to understanding the link between positive emotions and persuasion processing would argue that compassion would lead to increased systematic processing because the person is more alert (Griskevicius et al., 2010a). Thus, persuasion would likely decrease. The valence/agency approach, however, would argue that compassion is a positive emotion that is

other-focused because it involves feelings of concern for others. Consequently, it would lead to decreased systematic processing, and greater susceptibility to persuasive attempts (de Hooge et al. 2014). The purpose of the present study is to reconcile the conflicting explanations of the functional approach proposed by Griskevicius et al. and the valence/agency approach proposed by de Hooge et al.

In providing support for each approach, Griskevicius et al. (2010a) and de Hooge et al. (2014) used different methods that may explain the different findings. Griskevicius et al. examined positive emotional experiences, asking participants to recall different events that were designed to induce the targeted emotion. de Hooge et al., on the other hand, examined emotions that were generated toward the communicator of the message (e.g., participants assessed advice-taking toward someone whose actions benefitted the participant in some way). de Hooge's methods may have assessed feelings or opinions toward communicators of the message rather than how emotional experiences themselves may impact susceptibility to the persuasive messages. However, the more central research question is the role of general positive emotional experiences on susceptibility to persuasive attempts. In the present study, gratitude and compassion were selected given their predicted differences in susceptibility to persuasive attempts as proposed by the functional approach.

To assess how gratitude and compassion impact susceptibility to persuasive attempts, participants in the present study completed the Positive Affect and Negative Affect Scale (PANAS) to assess their baseline mood. The present study utilized a 2 (Emotion) x 2 (Strength of Argument) between-subjects design and participants were randomly assigned to one of four conditions. Weak and strong arguments were chosen to ascertain whether emotions are more influential with varying types of arguments. If arguments are strong and have a good foundation,

likely everyone would be persuaded, and emotional state likely would not impact susceptibility to persuasive attempts. Arguments supported by evidence are more indisputable and objective. On the other hand, weak, subjective arguments are based more on emotion, so we expect someone's emotional state to have more of an impact (Griskevicius et al., 2010a). The specific argument we used concerned whether the administration at the university should implement comprehensive exams. Arguments about the university in which the students attended were specifically used to engage the participants. After reading the arguments, participants rated their support for the comprehensive exams. Finally, participants completed dispositional, or trait levels, of gratitude and compassion questionnaires.

Consistent with the functional approach (Griskevicius et al., 2010a) and valence/agency approach (de Hooge et al. 2014), we hypothesized that gratitude would lead to increased persuasion in the weak argument condition. We also explored whether those in the compassion condition would be less susceptible to weak persuasive attempts, consistent with the functional approach, or more susceptible to weak persuasive attempts, consistent with the valence/agency approach. Consistent with the functional approach, we hypothesized that those feeling compassion would be less easily persuaded, particularly in the weak argument condition.

Method

Participants

Participants included 88 undergraduate students enrolled at a small liberal arts university. There were approximately 22 participants in each of the four conditions. Participants were either students who volunteered for credit in their Psychology courses or students who read about the study on social media. The majority of participants (36.4%) were Psychology majors. The

remainder included Health Science, Human Services, and other majors. The sample was 65% female and 35% male. Participants ranged in age from 18 to 26 years (M=19.68, SD=1.38). Most of the participants (81%) were White, followed by 9% Hispanic, 6% Black, 3% Asian, and 1% preferred not to say.

Materials

    Mood. Participants were asked to complete the Positive and Negative Affect Scale, which was used to gather information about participants' baseline mood (see Appendix A). Each item on the scale asked participants to rate the degree to which they were feeling different emotions (e.g., cheerful, disgusted, attentive) using a 5-point Likert Scale ranging from 1 (very slightly or not at all) to 5 (extremely). Ten of the 60 items assess general positive mood, and ten items assess general negative mood (Watson, Clark & Tellegen, 1988). Both the positive mood and negative mood subscales showed good reliability ($α$=0.88, $α$=0.93, respectively). A mean across the ten items was obtained for the two subscales.

    To induce gratitude and compassion participants were asked to write about a memory involving their assigned emotion. For gratitude, they were asked to "try to recall a time when you appreciated someone who did something kind for you or helped or benefitted you in some way." Those in the compassion induction condition were asked to, "try to recall a time when you empathized with someone or showed concern for another person's well-being who was feeling bad or sick." This method was different from previous methods, which named the emotion participants were expected to feel (Griskevicius et al., 2010a). The emotion was not named as a way of reducing demand characteristics. If the emotions were named, participants may have reported they were feeling that emotion, even if they were not. As a manipulation check, participants completed an adapted version of Fredrickson and Branigan's (2005) mood

questionnaire and the Self-Assessment Manikin (Bradley & Lang, 1994) to assess participants'

mood after the induction procedure (see Appendix B and C).

Persuasive Task and Measures. To manipulate the strength of the arguments, a series of

strong or weak arguments in favor of senior comprehensive exams were used and were adapted

from previous research (Petty & Cacioppo, 1984). Strong arguments were logical, sound, and

based on facts and evidence. Weak arguments did not include facts to support the main opinion.

They simply relied on anecdotes and loose, illogical connections. The degree to which

participants supported the arguments was measured by a 5-item, 9-point Likert Scale rating how

bad versus good, unfavorable versus favorable, foolish versus wise, negative versus positive, and

harmful versus beneficial the argument was (see Appendix D). The five items were averaged to

get a persuasion measure (α=0.95). A higher score indicated greater support for the arguments.

Additional Measures. Participants' dispositional gratitude and compassion were

measured by the GQ-6 and Compassion Scale, respectively (see Appendix E and F). The six

items on the GQ-6 showed reasonable reliability (α=.68) and were summed together (two items

were reverse-scored) to calculate a gratitude score (McCullough et al., 2002). The higher the

score, the greater the dispositional gratitude. The Compassion Scale was broken up into four

subscales: kindness (α=.76), common humanity (α=.60), mindfulness (α=.69), and indifference

(α=.60). The combined Compassion scale had good internal consistency (α=.73). The scale has

been validated and has been utilized in prior research (Pommier, et al., 2020). Participants also

completed a demographic questionnaire.

Procedure

Participants entered the lab in groups of 1-5 people and used desktops to log onto Qualtrics. After providing online consent, participants completed a survey that collected demographic information. To assess baseline mood, participants completed the PANAS. Participants were then randomly assigned to the gratitude or compassion induction procedure. Following the induction, as a manipulation check, participants completed Fredrickson and Branigan's (2005) mood questionnaire and the Self-Assessment Manikin (Bradley & Lang, 1994).

Next, participants proceeded to the persuasion task. They read eight arguments in favor of a comprehensive exam proposal for Assumption University (adapted from Petty & Cacioppo, 1984). Participants were randomly assigned to read either strong or weak arguments. After reading the arguments, participants completed the persuasion measure to rate their opinions about the arguments, particularly how favorable they found them.

Finally, participants completed the GQ-6 and the Compassion Scale to assess their dispositional gratitude and compassion, respectively. Upon completion of those final two scales, participants were debriefed and thanked for their participation. The entire procedure took approximately 30 minutes.

Results

Baseline Mood

Baseline mood was measured when participants entered the lab. A 2 (emotion condition) x 2 (argument strength) between subjects ANOVA was computed on participants' baseline positive mood. There was no significant main effect of emotion condition ($F(1,84)=0.09$, $p=0.77$,

partial η^2= 0.001). Participants in both the compassion (*M*=2.66, *SE*=0.12) and gratitude

condition (*M*=2.71, *SE*=0.12) were feeling equally positive upon entering the lab. In addition,

there was no significant main effect of argument strength (*F*(1,84)=1.33, *p*=0.25, partial η^2 =

0.02). Participants in both the strong (*M*=2.78, *SE*=0.12) and weak condition (M=2.59, SE=0.12)

were feeling equally positive. Finally, there was no significant interaction effect between

emotion condition and argument strength (*F*(1,84)=0.83, *p*=0.36, partial η^2 = 0.01). Positive

mood did not vary as a function of emotion condition and argument strength. Participants in the

gratitude strong (*M*=2.73, *SE*= 0.16) and weak (*M*= 2.69, *SE*=0.17), as well as the compassion

strong (*M*= 2.83, *SE*=0.17) and weak (*M*=2.49, *SE*=0.16) categories, were feeling equally

negative at baseline.

A 2 (emotion condition) x 2 (argument strength) between subjects ANOVA was

computed on participants' baseline negative mood. There was a significant main effect of

emotion condition (*F*(1,84)=7.33, *p*=0.01, partial η^2 = 0.08). At baseline, participants in the

compassion condition (*M*=1.79, *SE*=0.11) reported a more negative mood than the gratitude

group (*M*=1.39, *SE*=0.11). There was no significant main effect of argument strength

(*F*(1,84)=0.10, *p*=0.76, partial η^2 = 0.001). Participants in the strong condition (*M*=1.61,

SE=0.11) and weak condition (*M*=1.57, *SE*=0.11) were feeling equally negative at baseline.

Finally, there was a significant interaction effect between emotion condition and argument

strength (*F*(1,84)=4.12, *p*=0.05, partial η^2 = 0.05). Participants in the compassion strong

condition (*M*=1.97, *SE*=0.15) were feeling the most negative at baseline, followed by the

compassion weak (*M*=1.62, *SE*=0.15), gratitude weak (*M*=1.51, *SE*=0.15), and gratitude strong

(*M*=1.26, *SE*=0.15) conditions.

Manipulation Check

To assess the effectiveness of the induction procedure, 12 independent samples *t*-tests were computed on participants' post-induction mood. As shown in Table 1, there was a trend for the gratitude group to experience more gratitude than the compassion group. However, the compassion group did not experience more compassion than the gratitude group. In addition, there was a difference with contentment and sadness. The gratitude group was significantly more content than the compassion group, while the compassion group was significantly sadder than the gratitude group. However, when controlling for baseline sadness, there was no significant difference in sadness ratings for the two emotion condition groups.

To further test the effectiveness of the induction procedure, two raters blind to participants' condition read and coded the participants' open-ended memory recalls. The raters were given the memory recalls in a random order and were instructed to code the responses as gratitude, compassion, or other, depending on the emotion that seemed to best describe the participants' responses. An interclass correlation coefficient analysis indicated high agreement among the raters (0.92). Neither rater disagreed in such a way that they coded a gratitude response as compassion, or vice versa. The only disagreements were when one or both raters thought that neither category, gratitude nor compassion, applied to the response. For the gratitude condition, there were only two responses that one or more raters thought fit in the "other" category. However, the compassion condition had six responses that fit into the "other" category. Therefore, the compassion responses were less identifiable, thus it is possible that some of those participants were not truly induced to feel compassion.

Persuasion Susceptibility

Since baseline negative affect varied by emotion condition, negative affect was added as a covariate in the subsequent analysis. A 2 (emotion condition) x 2 (argument strength) between subjects ANCOVA was computed on participants' attitudes toward the senior comprehensive exam. There was no significant main effect of emotion condition ($F(1,83)=0.29$, $p=0.59$, partial $\eta^2=0.004$). Although not significant, the means were in the opposite of the predicted direction. Participants in the compassion condition ($M=-1.00$, $SE=0.28$) viewed the arguments more favorably than those in the gratitude condition ($M=-1.22$, $SE=0.28$), though this difference was not significant. There was a trend for a main effect of argument strength ($F(1,83)=2.99$, $p=.09$, partial $\eta^2=0.04$). Participants who were in the strong argument condition ($M=-0.78$, $SE=0.28$) viewed the arguments more favorably than those in the weak argument condition ($M=-1.45$, $SE=0.28$). Contrary to the hypothesis, there was no significant interaction effect between emotion condition and argument strength ($F(1,83)=0.22$, $p=0.64$, partial $\eta^2=0.003$, see Figure 1). For the strong argument condition, the compassion and gratitude groups did not differ in their attitudes toward the comprehensive exams. Although not significant, it appeared that in the weak argument condition, the compassion group viewed the comprehensive exam more favorably than the gratitude group. Thus, the means were not in the predicted direction.

Given that the induction procedure was problematic in inducting compassion, we also examined how trait gratitude and compassion were related to participants' attitudes toward the comprehensive exams. To assess this, correlations were run examining the relationship between the attitudes toward the comprehensive exams, the gratitude scale, the compassion subscales, and overall compassion scale. As shown in Table 3, although gratitude was related to compassion,

attitudes toward the comprehensive exams were unrelated to either trait gratitude or compassion.

Discussion

The purpose of the present study was to explore how the positive emotions of gratitude and compassion impacted persuasion processing. We hypothesized that participants in the gratitude induction condition would be more susceptible to persuasive attempts than those in the compassion induction condition. More specifically, we predicted that this difference would be more pronounced in the weak argument condition than in the strong argument condition. Contrary to the prediction, those in the gratitude group were not more susceptible to persuasive attempts than those in the compassion group, regardless of argument strength condition. These findings are inconsistent with the functional approach in explaining the impact of positive emotions in persuasion processing (Griskevicius et al., 2010a).

Two approaches have been proposed to explain how positive emotions impact persuasion processing: the functional approach (Griskevicius et al., 2010a) and the valence/agency approach (de Hooge et al., 2014). The functional approach states that the purpose or function of an emotion determines whether that emotion would be conducive to advice-taking (Griskevicius et al., 2010a). The valence/agency approach argues that the likelihood of being persuaded can be predicted by the valence of the emotion, positive or negative, as well as the agency, i.e., whether the emotion is self-focused or other-focused (de Hooge et al., 2014).

For both approaches, gratitude leads to greater susceptibility to persuasive attempts. The function of gratitude is to appreciate others when being benefitted. Gratitude increases feelings of safety and leads to a lack of caution. Similarly, attachment love manifests as feelings of love for a caregiver, leads to feelings of safety, and has been shown to lead to greater susceptibility to persuasive attempts (Griskevicius et al., 2010a). In examining the valence and agency of

gratitude, it is a positive emotion that is "other" focused (an appreciation for others). Positive, "other" focused emotions are likely to lead to greater susceptibility to persuasive attempts because that emotion indicates that another person's skills and abilities are in line with the participant's own wishes (de Hooge et al., 2014, Haidt, 2003). Thus, both the functional approach and valence/agency approach would predict that gratitude would reduce systematic processing and increase susceptibility to persuasion attempts (Griskevicius et al., 2010a; de Hooge et al., 2014).

For compassion, the two approaches lead to differing predictions. The function of compassion is to take care of others when needed. Compassion increases feelings of responsibility, as when a caregiver feels responsible for the person to which they are tending (Griskevicius et al., 2010a). Similarly, nurturant love manifests as feelings of love for another's well-being. Consequently, compassion leads to increased awareness of one's environment, causing the person feeling compassion to pay closer attention to incoming information and be less easily persuaded. On the other hand, in examining the valence and agency of compassion, similar to gratitude, it is a positive emotion that is other-focused because it involves feelings of concern for others. Thus, according to the valence/agency approach, persuasion would likely increase (de Hooge et al., 2014). The non-significant main effect of emotion condition is consistent with the valence/agency approach, as both emotions were expected to increase susceptibility to persuasive attempts. However, caution should be interpreted with using null findings to support the valence/agency approach. Additional emotions (e.g., including a neutral condition) would need to be included to draw any conclusions. Additionally, these findings should be viewed with caution given that the manipulation check indicated that the compassion induction was not effective (this will be addressed further below).

Interestingly, when examining the interaction effect, as predicted there was greater difference between the gratitude and compassion groups in the weak argument condition compared to the strong argument condition (although the interaction was not significant). However, similar to the main effect, these means were in the opposite of the predicted direction for the two emotion condition groups (the gratitude group viewed the arguments less favorably than the compassion group). These findings are inconsistent with our hypotheses and the functional approach (Griskevicius et al., 2010a). These findings are more consistent with the valence/agency approach. Since both gratitude and compassion are positive, other-focused emotions, both should lead to increased persuasion, and there would be no significant differences between the two groups (de Hooge et al., 2014). However, again, caution should be interpreted with using null findings to support the valence/agency approach.

It is interesting to note that, in general, the proposal for the comprehensive exam was viewed unfavorably by participants in the present study. The means in all four conditions were negative. In Griskevicius et al.'s study (2010a), the means in the four conditions were positive. Thus, the participants in that study viewed the proposals more favorably. Griskevicius et al. used the same arguments at their university and got more positive responses, thus, it is unclear why Assumption participants liked the proposal less than those in the initial study. Having general negative attitudes toward the proposal may have impacted the findings in the present study. It is possible that emotions impact the approval of arguments differently from the disapproval of arguments. The overall outlook (approval or disapproval) may have affected the susceptibility to persuasive attempts. Arguments framed in terms of gains vs. losses influence behavior decisions differently. When considering gains or benefits, people act to avoid risks. When considering losses or costs, they prefer taking risks (Rothman & Salovey, 1997). However, both this study

and Griskevicius et al. (2010a) used the same arguments, so the theory of gains and losses is unlikely to explain the discrepancies.

The general negative attitudes toward the comprehensive exams are inconsistent with other past research on positive emotions. The broaden and build theory states that positive emotions broaden attentional scope to facilitate information processing. In other words, positive emotions encourage people to attend to more stimuli at the same time (Fredrickson, 2001). Based on this principle, Bless et al. (1996) argues that people experiencing positive emotions are less likely to scrutinize specific information because they are paying attention to many things. This tendency makes them more easily persuaded, and view arguments more positively. However, in the present study, participants in all four conditions viewed the arguments negatively. This unexpected result may be because not all participants were induced to feel a positive emotion (discussed more below).

There are some objections to the broaden and build theory. Research suggests that some positive emotions may narrow attentional scope, such as the positive experience of interest (Sung & Yih, 2016). Approach motivation is another example of a positive emotion that narrows attentional scope. When someone is experiencing approach motivation, they focus only on a desired stimulus and shut out irrelevant stimuli, narrowing their attentional focus (Gable & Harmon-Jones, 2008). So, it appears the broaden and build theory may have been too simplistic. Some positive emotions broaden attentional scope and others narrow. The functional approach and the valence/agency approach help to explain what accounts for these differences. However, there may be differences in persuasion susceptibility when individuals have generally positive attitudes versus generally negative attitudes toward the argument. Future research should examine this possibility further.

Another explanation for the negative attitude towards the arguments is that participants may have had a negative attitude toward the idea of having to take another exam. The issue may have been with the topic of the arguments, rather than how persuasive they were. Message recipients are not always objective (Darke & Chaiken, 2005). Instead, they are sensitive to their own self-interests. Darke and Chaiken (2005) found that arguments that specified material benefits for the participants themselves were more persuasive than arguments that mentioned benefits more generally. In the study, participants were more likely to rate an argument as weak if it involved them doing something they were against (i.e., pay cost of a tuition increase themselves) rather than someone else doing it (Darke & Chaiken, 2005). In the present study, the arguments related to general benefits for college graduates, rather than specific benefits for each student. In addition, they involved the participants doing something they were likely against, taking an additional exam. Therefore, the findings of our study are consistent with Darke and Chaiken (2005). Finally, it is worth noting that there was a trend suggesting that participants were more persuaded by strong arguments than weak arguments. These results suggest that, although both weak and strong arguments were viewed negatively, the arguments did, in fact, differ in strength (Petty & Caccioppo, 1984; Darke & Chaiken, 2005).

Dispositional Gratitude and Compassion

To account for the possibility that the induction would not be effective, participants were asked to complete dispositional gratitude and compassion scales. The purpose was to examine how dispositional gratitude and dispositional compassion were related to attitudes toward the comprehensive exams (persuasion susceptibility). Unfortunately, attitudes toward the comprehensive exam were not significantly correlated to dispositional gratitude or compassion. These results suggest that trait gratitude and compassion were not related to persuasion

susceptibility. Therefore, our prediction that gratitude and compassion would differ in terms of persuasion susceptibility was still not supported.

Limitations With Induction

There were numerous limitations that may have led to the insignificant findings in the present study. One limitation was revealed by the manipulation check. The goal of the manipulation check was to assess whether participants were, in fact, induced to feel either gratitude or compassion, depending on which group they were in. Participants were induced to feel greater gratitude than those in the compassion condition. However, the compassion induction was unsuccessful. The compassion group was not induced to feel compassion. In fact, although not significant, the gratitude group was feeling more compassion following the induction than the compassion group. Therefore, the major question of the experiment (Is there a difference between gratitude and compassion in persuasion processing?) is difficult to answer because the compassion group did not report feeling more compassion.

One reason that participants may not have been induced to feel the intended emotions could be that we did not name the emotion when asking them to recall past events. We opted not to name the emotion in the induction procedure, but simply described the emotion instead. This method was used to avoid demand characteristics. However, this method was more successful for gratitude than compassion. This discrepancy may be due to the elicitors used for the different emotions having different levels of effectiveness. Participants in the gratitude condition were asked to remember a time they appreciated someone doing something kind for them. In the compassion condition, participants were asked to remember a time they empathized with someone who was feeling bad or sick. Perhaps being asked about appreciating something may have a stronger connection to gratitude than empathizing with someone connects to compassion.

Therefore, in our efforts to avoid demand characteristics, we may have inadvertently made it more difficult for participants in the compassion condition to feel compassion.

Another problem with the induction is that participants may not have all been induced to feel a positive emotion. According to the results of the manipulation check, the compassion group reported higher sadness ratings than the gratitude group. Furthermore, when the raters coded the induction responses produced by participants, there was greater disagreement among the compassion responses than the gratitude responses. The disagreement may stem from the fact that the raters thought the compassion inductions were better examples of sadness than compassion. Overall, these findings suggest that there may be something about the compassion induction that was inducing more sadness than the gratitude induction.

Further evidence that the compassion group may have been feeling sadness comes from their responses. There were some memory inductions where participants wrote about negative memories. Examples included a friend who was raped, a dog getting cancer, injured or sick family members, etc. The fact that some participants were writing about negative experiences suggests that those participants were likely induced to feel a negative emotion.

Supposing the compassion group was instead induced to feel sadness, the theory of how easily they should be persuaded changes. Sadness is a negative, self-focused emotion. According to the valence/agency approach, it should increase advice-taking (de Hooge et al., 2014). This is because a negative self-focused emotion can mean that one's own abilities or motivations fall below one's own standards (Tangney, et al., 2007). On the other hand, according to the functional approach, sadness involves reevaluating one's strategy after a loss. This regrouping period leads to more careful scrutiny of the environment (Griskevicius et al., 2010a). Therefore, participants induced to feel sadness should be less easily persuaded. Although the results were

not significant, the compassion (or sadness) group viewed the proposals less negatively, compared to the gratitude group. These results suggest that the compassion/sad group was slightly more susceptible to persuasive attempts than the gratitude group, thus greater support for the valence/agency approach (de Hooge et al., 2014). However, it is also important to note that the compassion and gratitude groups did not differ in sadness after controlling for baseline negative emotions.

By examining the definitions of gratitude and compassion, we can better understand why participants may have been induced to feel gratitude, but not compassion. Gratitude is defined as pleasant feelings about benefits received (Emmons & McCullough, 2004). This definition sounds very similar to the gratitude elicitor. Compassion is viewed as an other-related emotion involving positive feelings, such as love. It is associated with approach and prosocial motivation. Empathic distress is an emotion that can seem similar to compassion but is actually quite different. It is a self-related emotion involving negative feelings, such as stress. This emotion is associated with withdrawal and non-social behavior (Singer & Klimecki, 2014). Perhaps it was too simplistic to suggest that participants were feeling sadness instead of compassion. Maybe they were feeling empathic distress. The definition does not line up perfectly with the responses because participants did not describe withdrawing from their situations. However, it would explain why participants seemed to be feeling a negative feeling, rather than a positive feeling. Future research should improve upon past methods to ensure participants are induced to feel compassion, rather than empathic distress. The best way to do this may be to explicitly state that we are looking at compassion.

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Other Limitations

Other limitations involve the arguments used in the present study. The persuasive statements participants read may not have been persuasive. Participants read either a set of weak or strong arguments concerning Assumption instituting comprehensive exams. However, participants may have seen that the arguments were about comprehensive exams and decided that they did not want those to be instituted. Consequently, they were not favorable toward the proposals whether the arguments in support of the proposals were weak or strong, likely in an effort to avoid taking these exams (Darke & Chaiken, 2005). Future research should pilot the use of arguments that are less inherently controversial.

Finally, our study suffered from a demographic limitation. Our sample consisted completely of students at a small, Catholic, liberal arts institution. The students were primarily female and psychology majors. Consequently, it can be hard to generalize the findings of this study to the outside world. In future research, a more diverse sample should be obtained.

Implications

Although the findings of this study were not what we predicted, the research conducted is still extremely important. The fact that we examined properties of gratitude and compassion has many broad implications. Gratitude and compassion have many benefits in everyday life (Armenta et al., 2020; Hazlett et al., 2021; Monroy et al., 2021; Reis, 2017). For example, students who completed daily gratitude exercises experienced greater life satisfaction (Armenta et al., 2020). In addition, women who experienced more gratitude had greater health benefits (Hazlett et al., 2021). Changes in gratitude have been shown to lead to positive changes in subjective well-being (Liao & Weng, 2018).

In terms of compassion, spouses who exhibited compassion toward their partners were found to be happier (Reis, 2017). Furthermore, greater compassion among first responders reduced their risk of PTSD (McDonald, 2021). Researchers also emphasize the importance of compassion and post-traumatic growth for sexual trauma therapists. Both post-traumatic growth and compassion serve as resources to help alleviate some of the secondary trauma afflicting trauma therapists (Samios, 2013). Overall, it is imperative that we get a better understanding of gratitude and compassion due to the many benefits associated with them. Understanding how these emotions are related to persuasion processing has wide-ranging implications in social interactions, management, advertising, and much more.

More generally, the work done in this study is important because it teaches us more about positive emotions. Like gratitude and compassion, general positive emotions are beneficial. For example, those who are optimistic have improved mental health (Patnaik, 2013). In terms of physical health, positive emotions have been shown to speed up recovery from cardiovascular issues (Tugade et al., 2004). Furthermore, those who seek out positivity can more easily adapt to changing environmental demands (Catalino, et al., 2014). Based on all of this research, positive emotions are vital to humans' mental and physical well-being. The continued study of positive emotions can only serve to better society.

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Tables and Figures

Table 1. *Means and Standard Errors for Frederickson Emotion Scales Used for the*

Manipulation Check

| Emotion	Compassion M(SE)	Gratitude M(SE)	*t*-value	Confidence Intervals
Amusement	1.84 (1.61)	2.23 (1.72)	-1.09	[-1.09, 0.32]
Anger	1.00 (1.59)	0.59 (1.34)	1.31	[-0.21, 1.03]
Anxiety	2.41 (2.30)	2.11 (2.08)	0.63	[-0.63, 1.22]
Awe	0.98 (1.39)	0.86 (1.15)	0.43	[-0.43, 0.66]
Compassion	3.16 (2.34)	3.23 (2.23)	-0.14	[-1.05, 0.91]
Contentment	2.89 (1.97)	4.11 (2.23)	-2.38**	[-2.12, 0.34]
Disgust	0.68 (1.12)	0.49 (1.30)	0.75	[-0.32, 0.71]
Fear	1.09 (1.80)	0.88 (1.47)	0.59	[-0.49, 0.91]
Gratitude	2.98 (2.50)	4.00 (2.45)	-1.93+	[-2.08, 0.03]
Happiness	3.55 (2.24)	4.26 (1.97)	-1.57	[-1.61, 0.19]
Sadness	1.84 (1.76)	1.05 (1.43)	2.32*	[0.11, 1.48]
Serenity	1.80 (1.79)	1.93 (1.96)	-0.34	[-0.93, 0.66]

*Note: N=88; +p<.10, *p<.05, **p<01*

Table 2. *Means, Standard Deviations, and Correlations of Trait Gratitude and Compassion.*

	M	*SD*	1	2	3	4	5	6
1. Exam Attitudes	-1.11	1.83						
2. Gratitude Scale	5.89	0.68	.09					
			[-0.12, 0.30]					
3. Kindness	4.29	0.61	-.02	.30**				
			[-0.23, 0.19]	[0.10. 0.48]				
4. Common Humanity	4.18	0.63	.05	.12	.17			
			[-0.16, 0.26]	[-0.10, 0.32]	[-0.04, 0.37]			
5. Mindfulness	4.00	0.59	.18	.26*	.55***	.14		
			[-0.04, 0.37]	[0.05, 0.44]	[0.38, 0.68]	[-0.07, 0.34]		
6. Indifference	4.20	0.60	.19	.07	.26**	-.14	.28**	
			[-0.02, 0.39]	[-0.14, 0.28]	[0.05, 0.45]	[-0.34, 0.07]	[0.77, 0.46]	
7. Compassion Scale	4.17	0.39	.16	.29**	.78***	.47***	.77***	.54***
			[-0.06, 0.35]	[0.09, 0.47]	[0.68, 0.85]	[0.29, 0.62]	[0.66, 0.84]	[0.37, 0.67]

*Note: Values in the square brackets represent the 95% confidence interval for each correlation. N=88; *p<.05, **p<01, ***p<.001.*

Figure 1. *Mean Persuasion Score as a Function of Emotion Condition and Argument Strength*
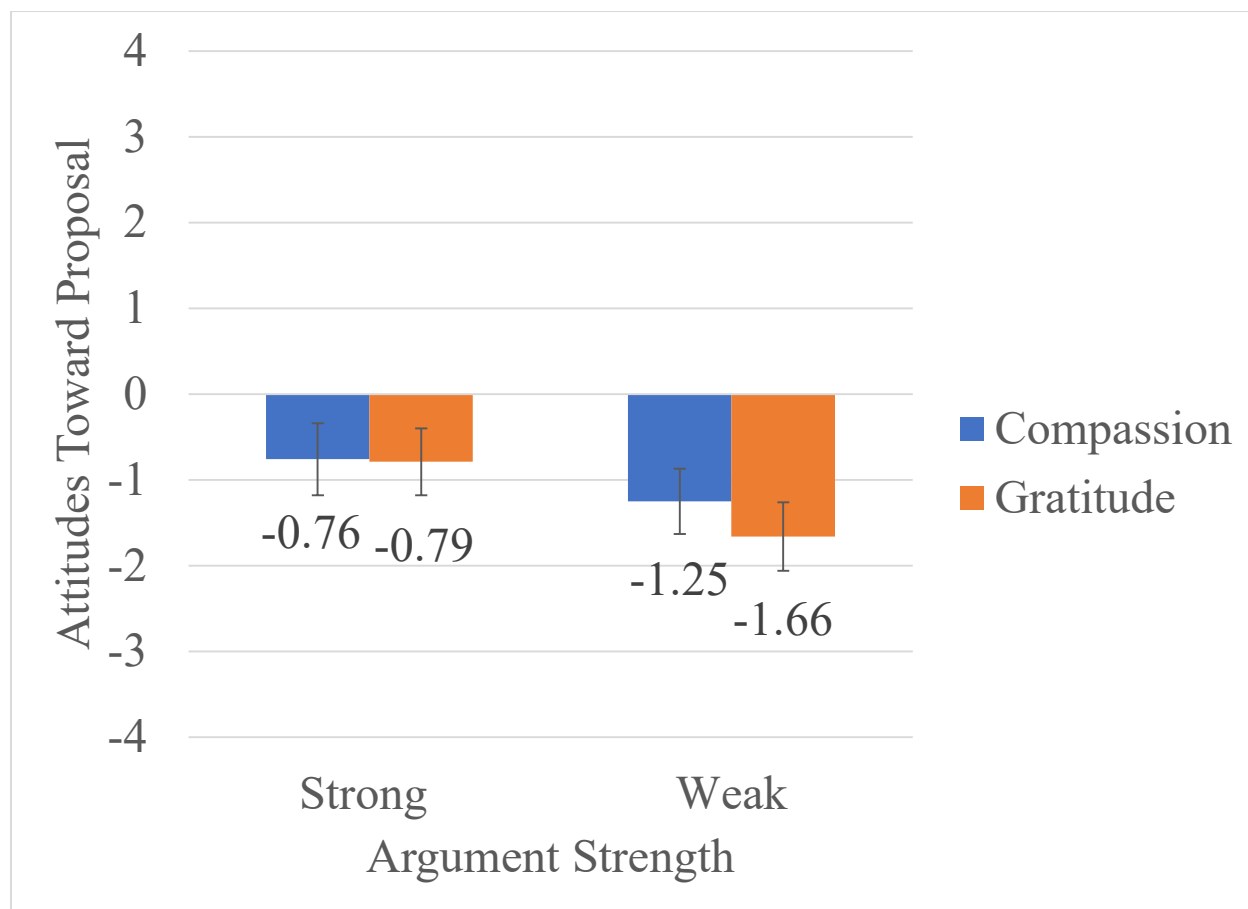
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APPENDIX A: PANAS

This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel this way *right now*. Use the following scale to record your answers:

1	2	3	4	5
Very slightly or not at all	A little	Moderately	Quite a bit	Extremely

1. _____ cheerful
2. _____ disgusted
3. _____ attentive
4. _____ bashful
5. _____ sluggish
6. _____ daring
7. _____ surprised
8. _____ strong
9. _____ scornful
10. _____ relaxed
11. _____ irritable
12. _____ delighted
13. _____ inspired
14. _____ fearless
15. _____ disgusted with self
16. _____ sad
17. _____ calm
18. _____ afraid
19. _____ tired
20. _____ amazed
21. _____ shaky
22. _____ happy
23. _____ timid
24. _____ alone
25. _____ alert
26. _____ upset
27. _____ angry
28. _____ bold
29. _____ blue
30. _____ shy
31. _____ active
32. _____ guilty
33. _____ joyful

34. _____ nervous
35. _____ lonely
36. _____ sleepy
37. _____ excited
38. _____ hostile
39. _____ proud
40. _____ jittery
41. _____ lively
42. _____ ashamed
43. _____ at ease
44. _____ scared
45. _____ drowsy
46. _____ angry at self
47. _____ enthusiastic
48. _____ downhearted
49. _____ sheepish
50. _____ distressed
51. _____ blameworthy
52. _____ determined
53. _____ frightened
54. _____ astonished
55. _____ interested
56. _____ loathing
57. _____ confident
58. _____ energetic
59. _____ concentrating
60. _____ dissatisfied with self

Appendix B: Fredrickson and Branigan's Mood Questionnaire

Please rate how you are presently feeling on the following nine emotions. Please indicate the greatest amount felt of each emotion by circling a number next to the emotion.

	0=None……………………………...8=A Great Deal								
Amusement	0	1	2	3	4	5	6	7	8
Anger	0	1	2	3	4	5	6	7	8
Anxiety	0	1	2	3	4	5	6	7	8
Awe	0	1	2	3	4	5	6	7	8
Compassion	0	1	2	3	4	5	6	7	8
Contentment	0	1	2	3	4	5	6	7	8
Disgust	0	1	2	3	4	5	6	7	8
Fear	0	1	2	3	4	5	6	7	8
Gratitude	0	1	2	3	4	5	6	7	8
Happiness	0	1	2	3	4	5	6	7	8
Sadness	0	1	2	3	4	5	6	7	8
Serenity	0	1	2	3	4	5	6	7	8

Please turn the page over to complete additional ratings.

Appendix C: Self-Assessment Manikin

To answer the following questions, please circle the appropriate figure in each row.

In the top row, the figure on the left represents a completely positive feeling and the figure on the right represents a completely negative feeling. Which of the 5 figures in the top row best represents how you feel at this moment?

In the bottom row, the figure on the left represents an extremely aroused state and the figure on the right represents a completely calm state. Which of the 5 figures in the bottom row best represents how you feel at this moment?

Completely   Completely
Positive   Negative

Extremely   Completely
Aroused   Calm

APPENDIX D: Attitudes Toward Proposal

Please state how you feel about the proposed Senior Comprehensive Exam/Stricter Grading Policy to be instituted at Assumption University. Circle the number that reflects your attitudes.

-4	-3	-2	-1	0	1	2	3	4
Bad								Good

-4	-3	-2	-1	0	1	2	3	4
Unfavorable								Favorable

-4	-3	-2	-1	0	1	2	3	4
Bad								Good

-4	-3	-2	-1	0	1	2	3	4
Foolish								Wise

-4	-3	-2	-1	0	1	2	3	4
Negative								Positive

-4	-3	-2	-1	0	1	2	3	4
Harmful								Beneficial
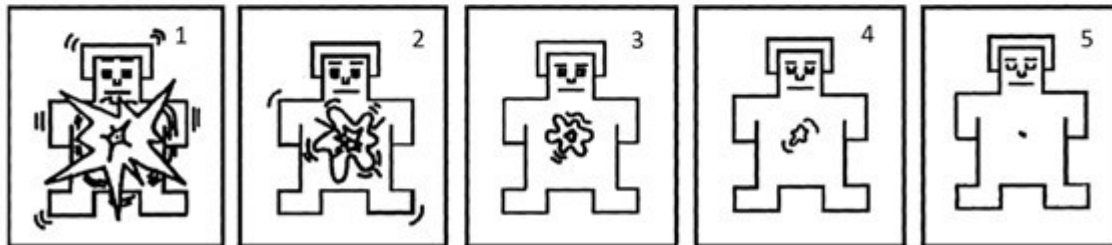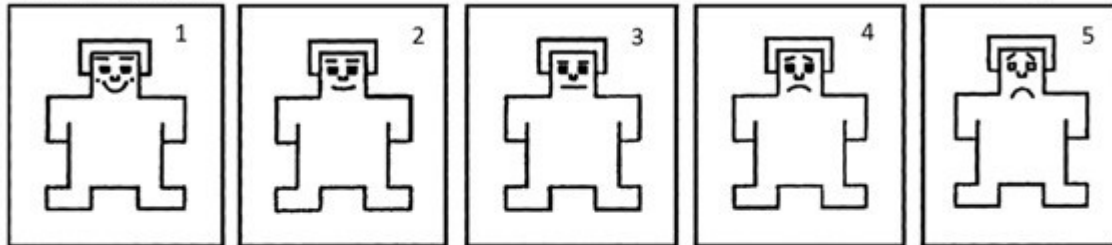
Appendix E: GQ-6

Instructions: Using the scale below as a guide, write a number beside each statement to indicate how much you agree with it.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

_____1. I have so much in life to be thankful for.

_____2. If I had to list everything that I felt grateful for, it would be a very long list.

_____3. When I look at the world, I don't see much to be grateful for.

_____4. I am grateful to a wide variety of people.

_____5. As I get older I find myself more able to appreciate the people, events, and situations that have been part of my life history.

_____6. Long amounts of time can go by before I feel grateful to something or someone.

Appendix F: Compassion Scale

Please read each statement carefully before answering. Indicate how often you feel or behave in the stated manner on a scale from 1 (almost never) to 5 (almost always). Please answer according to what really reflects your experience rather than what you think your experience should be.

1	2	3	4	5
Almost Never				Almost Always

1. If I see someone going through a difficult time, I try to be caring toward that person.

2. I like to be there for others in times of difficulty.

3. My heart goes out to people who are unhappy.

4. When others feel sadness, I try to comfort them.

5. Everyone feels down sometimes, it is part of being human.

6. It's important to recognize that all people have weaknesses and no one's perfect.

7. Despite my differences with others, I know that everyone feels pain just like me.

8. Suffering is just a part of the common human experience.

9. I pay careful attention when other people talk to me.

10. I notice when people are upset, even if they don't say anything.

11. I tend to listen patiently when people tell me their problems.

12. When people tell me about their problems, I try to keep a balanced perspective on the situation.

13. I don't concern myself with other people's problems.

14. I can't really connect with other people when they're suffering.

15. I don't think much about the concerns of others.

16. I try to avoid people who are experiencing a lot of pain.