UNIVERSITY OF CALIFORNIA

IRVINE

Keeping the Magic Alive:

How Social Sharing of Positive Life Experiences Sustains Happiness

DISSERTATION

Submitted in partial satisfaction of the requirements

for the degree of

DOCTOR OF PHILOSOPHY

in Psychology and Social Behavior

by

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2016

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Acknowledgments

What a truly magical experience it has been learning and growing with such remarkable mentors and colleagues at UC Irvine. I feel fortunate to receive training from such brilliant minds.

To my committee chair, Dr. Linda Levine: I am so very grateful for six years of your guidance and inspiration. Working with you has taught me how to think, how to ask the deeper questions, and how to produce impeccable work. Along this path, your support and sweet demeanor have walked with me, guiding me through the successes and challenges.

To Dr. Belinda Campos: It is hard to imagine what graduate school would have been like without your exemplary mentorship. Thank you for inviting me into your lab and for guiding so much of my academic and personal growth. You have been such an inspiring force, always so giving of your time and compassion and so encouraging in helping us find our voices.

To Dr. Susan Charles: It has been such a pleasure taking your classes, sitting in on a few of your lab meetings, and serving as a TA in your class. Your thoughtfulness as a researcher, skill as a teacher, and compassion as a mentor have been inspiring.

A special thank you to the wonderful research assistants who helped make this dissertation possible: Chris Keou, Dana Joudi, Graciela Perez, Narine Ghazarian and Nicholas Green.

Another thank you to Sharon Shenhav for her careful eye and for Marija Pejcinovska for her statistical expertise.

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Abstract of the Dissertation

Keeping the Magic Alive:

How Social Sharing of Positive Life Experiences Sustains Happiness

By

Arpine Hovasapian

Doctor of Philosophy in Psychology and Social Behavior

University of California, Irvine, 2016

Professor Linda Levine, Chair

Life is full of triumphs and defeats. When people experience positive life events, they often share the news, allowing them to savor and capitalize on their good fortune. Sharing positive life experiences with others has been shown to increase the intensity of positive emotion (Gable & Reis, 2010). However, research has yet to address several important questions about the benefits of social sharing and the processes that produce them. Namely, does social sharing increase the *duration* of positive emotion as well as its intensity? What types of responses from listeners serve to increase positive emotion?

The first aim of this dissertation was to investigate whether sharing increases the duration of positive emotion. The second aim of this project was to uncover processes by which sharing increases positive emotion, an issue that has received little empirical attention (Gable, Reis, Impett, & Asher, 2004). I hypothesized that sharing sustains positive emotion because enthusiastic responses lead to an increase in the sharer's appraisal of the importance of the event. I also hypothesized that enthusiastic responses may sustain positive emotion because they emphasize remarkable and unique aspects of the emotion-eliciting event. Emphasizing such

features may slow the sharer's tendency to "explain away" positive events and the resulting decrease in emotional response.

Two studies tested these hypotheses. Study 1 followed students after they received a desirable exam grade. Sharing was associated with longer emotional episodes, more time spent thinking about the grade, and slower fading of emotion across time. Emotion intensity and duration were highest when the sharing targets were perceived as highlighting the importance and remarkability of the event. Study 2 experimentally manipulated responses to sharing after participants received a high score on a creativity test. Although no differences were observed across experimental conditions, for those who shared, the amount of sharing was associated with emotion intensity and duration. This effect was mediated by changes in appraisals of importance and remarkability.

Introduction

Emotional events, and our responses to them, guide behavior and shape our lives. Psychological science has focused primarily on responses to negative life events with an extensive literature on how social support reduces distress during difficult times. At the heart of this literature is the idea that people seek contact with supportive others to help them cope with negative events. Relatively little attention has been paid to social sharing of positive events even though positive events typically greatly outnumber negative ones and people are just as likely to recount positive events as negative ones (Gable and Haidt, 2005). An exception is a small but growing literature on savoring which explores the up-regulation or enhancement of positive emotion. An important strategy for savoring is sharing positive events with others, a process Langston (1994) termed "capitalization." Research suggests that sharing positive life events increases their emotional impact, builds personal resources, and serves important social functions, thus allowing people to capitalize on the good things that happen to them (Gable et al., 2004).

Understanding what makes good feelings last is critically important given that positive events do not always bring about sustained happiness. The Hedonic Adaptation Model indicates that emotional reactions to positive events fade as people become accustomed to them (Frederick & Loewenstein, 1999). Savoring strategies, such as social sharing, may serve to amplify positive emotions and slow down affective adaptation. Thus, investigating the benefits of sharing positive events, the conditions under which these benefits are found, and the processes that produce them, will enhance understanding of how to capitalize on positive events in a manner that promotes people's well-being.

Research on social sharing of positive life events is in its formative stages. This research

shows that sharing good news with responsive others is related to greater intensity of positive emotion (Gable & Reis, 2010). Emotion intensity is only one index of emotional impact, however, and little is known about the effects of social sharing on other features of the emotional experience. Namely, psychologists have recently argued for the importance of considering time-dynamics in emotion research since emotions are not confined to momentary incidents but rather are dynamic processes that unfold over time. In addition, time related features of emotional episodes may be better indicators of well-being than intensity (Diener, Sandvik, Pavot, 1991; Sonnemans & Frijda, 1994). Thus, a comprehensive understanding of social sharing must take into account, not only the intensity, but also the *duration* of emotional experience (Eaton & Funder, 2001). Only one study has tested whether sharing prolongs positive emotion (Verduyn et al., 2009), but the findings were later questioned by the lead authors on methodological grounds (Brans et al., 2013). The first aim of this dissertation was to investigate whether sharing positive life experiences prolongs positive emotion in addition to intensifying it.

Little is known about underlying processes by which sharing of positive life events increases and sustains positive emotion (Gable, Reis, Impett, & Asher, 2004). Thus, the second aim of this project was to identify these processes. One reason that sharing may promote happiness is because it involves rehearsal of the positive event, and rehearsal increases the salience and accessibility of the event in memory (Gable et al., 2004). However, sharing is an interpersonal process and its effects have been shown to be contingent upon an enthusiastic response from the listener (Gable, Gonzaga, & Strachman, 2006; Gable & Reis, 2010; Lambert et al., 2012). Enthusiastic responses by the target of sharing may alter how the sharer appraises the positive event thereby increasing and sustaining positive emotion.

Appraisal theories of emotion hold that emotions are initially evoked when events are

appraised as novel and important (i.e., goal relevant) (Scherer, 2001). Events appraised as promoting goal attainment elicit positive emotion whereas events appraised as thwarting goal attainment elicit negative emotion (Carver, 2004; Frijda, 1987; Lench, Flores, & Bench, 2011; Levine, 1996). The more novel the event and the more important the goal, the more intense and lasting the resulting emotional experience will be (Smith & Lazarus, 1993; Verduyn et al., 2009). Appraisals of novelty and importance may also contribute to the benefits of social sharing of positive events. Some research indicates that these benefits depend on an enthusiastic response from the listener (Reis, et al., 2010; Gable et al., 2004). For example, Gable et al. (2004) had romantic couples report incidents when they shared the news about positive events with their partner and describe their partner's response. Responses that were active and constructive, as opposed to passive or destructive, were associated with higher well-being and relationship quality. Active and constructive responses were characterized by showing excitement and asking a lot of questions.

To explore this effect further, I investigated *how* enthusiastic responses lead to affective benefits. That is, what is it about active and constructive responses that enhance positive emotion? I proposed that listeners may encourage certain appraisals of positive events in the sharer that serve to increase and prolong positive emotion. An enthusiastic response to sharing may increase the intensity and duration of positive emotion because it leads the sharer to appraise the event as more important. Thus, sharing may increase positive emotion, not only by making the event accessible in memory through rehearsal, but also by changing the sharer's appraisal of the importance of the event.

Drawing on hedonic adaptation models (e.g., Brickman & Campbell, 1971; Fujita & Diener, 2005; Wilson & Gilbert, 2008), I proposed a third mechanism, which is also related to

appraisal change, that may explain how sharing sustains positive emotion. Events that are remarkable, novel and poorly understood evoke more intense emotion than events that are expected, ordinary and clearly understood (Wilson & Gilbert, 2008). Over time, emotional events lose their impact as people adapt and come to understand them better. Enthusiastic responses from listeners may sustain positive emotion by emphasizing the remarkable aspects of positive events, slowing down affective adaptation to events.

In summary, I hypothesized that sharing positive life experiences both prolongs and intensifies positive emotion. Because these outcomes are brought about by certain types of responses from others, the social process of sharing and receiving feedback from others is vital. I propose that the social process of sharing events with others changes people's appraisals of events in a manner that has lasting affective consequences. Additionally, it follows that the more one shares, the more opportunities there are for such processing to occur. Thus, the longer one shares, and the more people one shares with, the larger the affective gains.

To test this, I conducted two studies to investigate the emotional outcomes of social sharing of positive events and the cognitive and social mechanisms responsible for those outcomes. This project was the first to examine whether social sharing increases the duration as well as the intensity of positive emotion. I also investigated two social processes by which sharing may increase and sustain positive emotion. I hypothesized that sharing would be associated with affective benefits particularly when the sharing interaction (1) highlights the importance of the event, and (2) highlights the remarkable, extraordinary and unique aspects of the event, which will be referred henceforth as "remarkability." Study 1 followed people's real life social sharing experiences and captured naturalistic responses to positive event sharing. Study 2 experimentally manipulated responses to sharing of a positive event.

Before outlining the proposed studies in more detail, I will review the literature that informs the theoretical rationale for this project. First, I argue that it is important to study positive emotion. I review the effects of positive emotion on well-being using Fredrickson's (2001) Broaden-and-Build model as a theoretical foundation for understanding the functions and consequences of positive emotions. Next, I review research on savoring strategies that amplify positive emotions, slow down adaptation to positive life events, and confer additional psychosocial benefits. Finally, I focus on social sharing as a way to savor life joys, reviewing what is known about the effects of sharing, what is missing from the literature, and how this project will increase understanding of the benefits of sharing and the processes that produce them.

Why Study Positive Emotions?

Positive events, and our responses to them, make up a large part of our emotional lives. The frequency of positive events often greatly outnumbers that of negative events, with daily diary studies estimating a conservative ratio of three positive events to every negative event (Gable and Haidt, 2005). Gable and Reis (2010) argue that, despite the notion that "bad is stronger than good," positive events have a significant impact on our lives. Though a single negative event might be more impactful than a single positive one, the combined impact of many positive events is greater overall because of their frequency. Sharing positive experiences is also an important part of our social lives. Daily diary studies indicate that people share the best part of their day between 60% and 80% of the time (Gable, Reis, Impett, & Asher, 2004). Although people are most likely to share important events, even trivial events are shared (such as "sleeping in" in one college sample; Gable & Reis, 2010). Sharing of life's successes with others is such an important part of our lives that Argyle and Henderson (1984) dubbed it the number-one rule of

friendship.

A second reason to study positive emotions is that their effects on well-being and health seem to occur over and above the effect of the absence of negative events – a distinction that highlights the independence of positive and negative emotional processes (Gable & Reis, 2010). Reactions to positive and negative events are regulated by the appetitive and aversive systems respectively, which are rooted in different physiological systems and have different behavioral functions (e.g., Carver, 1996, Cain & LeDoux, 2008). Illustrating the independence of these systems, Gable and Reis (2010) outline differences between sharing of good news (capitalization) and sharing of stressors (social support seeking). They note that capitalization serves different functions, is linked to different outcomes, and unfolds in a manner different from social support. The most fundamental difference is that successful social support alleviates negative outcomes whereas successful capitalization increases positive outcomes.

Thus, positive emotions constitute an important part of our everyday lives and researchers cannot learn about the benefits of positive emotions simply by investigating the presence or absence of negative emotions (Diener, Suh, & Lucas, 1999). But how do positive emotions specifically affect people's well-being? Understanding the functions of positive emotions can help untangle ways in which they can be enhanced.

Enduring Effects of Positive Emotions

The pursuit of sustained happiness is a perennial concern that has garnered increased attention in recent years. Positive emotions are desirable not only because of the hedonic pleasure they bring about, but also because they build lasting personal and social resources (Fredrickson, 2001). Understanding what makes positive emotions last and what makes them fade can help researchers and practitioners identify ways to maximize gains from positive life

events and promote people's happiness and well-being. Fredrickson's (2001) Broaden-and-Build model provides a theoretical foundation for understanding the lasting effects of positive emotions. Drawing on earlier work by Alice Isen (e.g., Isen, Daubman, & Nowicki, 1987), the theory holds that positive emotion broadens thought-action repertoires, which facilitates the development of skills and resources. For example, joyful play leads to exploration of an environment, a pleasant interaction leads to friendship. Over time, such resources build and promote well-being and fulfillment (Fredrickson & Joiner, 2002). Beneficial effects of positive emotions on health and well-being, over and above effects of the absence of negative events, has substantial support. Increases in everyday pleasant events are associated with decreases in depressive symptoms (Zautra, Schultz, & Reich, 2000) and increased self-esteem and perceived control (Nezlek and Gable, 2001). Positive expressions in yearbook photos have been found to be related to well-being 30 years later (Harker & Keltner, 2001). Expressing positive emotions has also been found to be related to decreased mortality six decades later (Danner, Snowdon, & Friesen, 2001)**.** Further, positive emotions are advantageous during recovery from negative life experiences (Cohn, Fredrickson, Brown, Mikels & Conway, 2009). Positive emotions also have powerful social functions and are critically important for the formation and maintenance of social bonds (Shiota, Campos, Keltner, & Hertensetein, 2004). In sum, resources garnered from positive emotions appear to promote successful outcomes in a number of life domains including relationships, health, and work (Lyubomirsky, King, & Diener, 2005).

Importantly, though, positive life events do not always bring about sustained happiness. The Hedonic Adaptation Model suggests that over time, the emotional effects of a stimulus fade as people become accustomed to it (Frederick & Loewenstein, 1999; see also Helson, 1964; Parducci, 1995). For example, people often return to stable levels of happiness despite major life

experiences, such as winning the lottery (Brickman, Coates & Janoff-Bulman, 1978). Though hedonic adaptation is ultimately adaptive (it allows people to attend to new goals), researchers have argued that rapid and complete adaptation to positive events is a major obstacle to increasing and sustaining happiness (Lyubomorisky, 2010). How then can people slow down adaptation to positive life events and enhance and prolong their positive reactions? Although a vast literature explains how people down-regulate negative emotions, less is known about specific ways in which people up-regulate positive emotions. Understanding the processes by which positive emotions can be savored can help identify ways to capitalize on its psychosocial benefits. Next, I review what is known about positive emotion regulation, otherwise known as "savoring" strategies.

Savoring Positive Emotions

Researchers have recently begun to investigate savoring but empirical work on the specific outcomes of savoring and the processes that produce those outcomes remains scarce. Bryant and Veroff (2006) hypothesized that savoring helps build relationships, promotes mental and physical health, boosts creativity, and facilitates finding connection and meaning in life. Using an online questionnaire that measured dispositional positive emotion regulation strategies, Quoidbach, Berry, Hansenne, & Mikolajczak (2010) examined the effects of four categories of common savoring behaviors: Being Present (directing attention to the present moment), Behavioral Display (expressing positive emotions nonverbally), Capitalization (communicating and celebrating events with others), and Positive Mental Time Travel (vividly remembering or anticipating positive events). Consistent with claims about the benefits of savoring, they found that greater use of each of these savoring strategies was associated with positive emotional outcomes. It is important to note that the last three of these common savoring behaviors are

implicated in the process of social sharing, which supports the view that emotion regulation is frequently a social process.

Because emotion regulation is often social, the study of savoring should take into account the role of other people's reactions to expressed emotions. Rime (2009) argues that prevailing theories of emotion regulation lack this important focus on interdependency. Emotion regulation in children is universally recognized to be an interdependent process rooted in attachment, but views on adult emotion regulation have taken a "rugged individualism" perspective, with the implication that over the course of development individuals eliminate social dependence. Similarly, most research on affective science focuses on individual appraisals, personal control, and action. Social and communal aspects are often ignored (Riger, 1993). Questioning this view, Rime argues that emotional interdependence does not vanish over the course of development. Rather, early attachment figures are replaced by elected attachment figures (friends, romantic partners) in emotion regulatory processes. From this perspective, interpersonal processes such as social sharing lie at the core of adult emotion regulation and continue to buffer negative emotion, promote positive emotion, alter the cognitive processing of emotional events, increase knowledge about emotion, and contribute to social integration well after childhood.

In sum, emotion regulation is a fundamentally social process with social sharing playing a pivotal role. Research supports the view that social sharing can up-regulate positive emotion and lead to psychological gains but questions remain regarding specific emotional outcomes and processes involved. The following sections outline the benefits of sharing life's joys and describe how current studies can help us understand specific ways people can promote positive emotion and slow hedonic adaptation.

Effects of Sharing Positive Life Experiences on Emotional Intensity and Duration

Sharing positive life experience increases the intensity of positive emotion and enhances feelings of well-being. For example, drawing on Fredrickson's Broaden-and- Build model (2001), Gable et al. (2004) predicted that social sharing of good news would be associated with increased intensity of positive emotion and subjective well-being, beyond the effects associated with the positive event itself. Over the course of seven days, participants kept a diary of daily emotional events, reported their life satisfaction, intensities of positive and negative affect, and capitalization attempts. Communicating positive events with others was associated with increased intensity of daily positive affect and well-being. Replicating these findings through experimental manipulations, Lambert et al. (2012) found causal evidence that sharing heightened the intensity of positive emotion. Participants entered a lab session with a romantic partner or friend and were asked to share a positive experience from their week. Sharing a positive event led to higher ratings on positive emotion compared to a neutral interaction. Thus, sharing increases the intensity of positive emotions.

Two important questions remain: Does social sharing increase the *duration* of positive emotion in addition to its intensity? If so, how does sharing promote and sustain happiness? Emotion duration is important because it offers a more complete understanding of emotional episodes than considering emotion intensity alone. Researchers have recently emphasized the importance of time-related characteristics of emotions given that emotions are not confined to momentary incidents but rather are dynamic processes that unfold over time (Eaton & Funder, 2001; Hemenover, 2003; Schimmack, Oishi, Diener, & Suh, 2000). For example, Diener, Sandvik, & Pavot (1991) argue that instead of focusing on intensity, a better approach to studying happiness is to measure the *relative percent of time* individuals are happy versus

unhappy. They hold that time spent happy can be measured more easily and accurately than the intensity of happiness. Time spent happy is easily encoded and can be accurately recalled from memory. It can also be reported in ways that are comparable across people. For example, recalling how many hours of the day one felt happy is easier than recalling the actual felt intensity of past emotions. They argue that measures of time are easily understood while intensity scores, which rely on ordinal scales (e.g., "very happy," "somewhat happy") are more abstract. In addition, intense positive emotion is neither necessary nor sufficient for overall well-being. People may experience low intensity positive emotions but report being happy in life. Intense positive emotions may also have undesirable features. Emotions that are intense and continuously fluctuating may be indicative of disorder rather than well-being (Larsen and Diener, 1987). Thus, time-related characteristics of emotional episodes can be at least as important as emotion intensity.

Accordingly, researchers have begun to investigate the *duration* of emotional episodes – an index of emotional response that includes information about intensity (duration is affected by initial intensity of emotion) as well as time dynamics (Verduyn et al., 2009). This approach, which I adopted in my dissertation research, provides a more thorough understanding of emotional experience than intensity alone. Investigating the effects of sharing on both intensity and duration will also allow for a comparison of these two features of emotion. Only one study has investigated the duration of positive emotions following social sharing, however, methodological limitations which were later pointed out by the authors limit the conclusions that can be drawn. Verduyn et al. (2011) examined how social sharing was related to the duration of positive and negative emotions in everyday life. Over the course of five days, participants reported on the duration of their anger, sadness, joy, and gratitude episodes. Discrete time

survival analysis showed that social sharing was associated with greater duration of both positive and negative emotions.

The finding that sharing prolonged negative emotion contradicts the commonly held, but scientifically contested, notion that expressing negative emotions dissolves their impact (Scheff, 1979; Pennebaker, 1997; for review see Rime, 2009). The authors subsequently raised concern about a possible methodological artifact that resulted from analyzing the emotion episode as a whole (Brans, Mechelena, Rimé & Verduyn, 2013). They argued that the association between social sharing and increased duration of both positive and negative emotion could have resulted because longer emotional episodes provide more time and opportunity for sharing. To address this concern, Brans et al. measured social sharing at a finer level, allowing both sharing and emotion to vary within an episode. Participants indicated whether they had shared their emotion during each 15-minute interval of emotion episodes. Examined in this way, the results revealed that sharing shortened rather than lengthened emotion duration. Since this study, which addressed the methodological artifact seen in Verduyn et al. (2011), only assessed negative emotions, it remains unclear whether sharing positive life experiences shortens or lengthens the duration of positive emotion. Applying this additional methodological technique to the current study provided important evidence concerning the potential benefits of social sharing of positive life events.

With the exception of Verudyn et al. (2011), no other study has directly examined the effects of sharing on the duration of positive emotion but indirect evidence suggests that sharing may increase duration. Verduyn et al. (2009) examined the duration of daily emotional episodes and found that key predictors of longer duration included the reappearance of the emotion-eliciting source, the importance of the eliciting situation, and the intensity of the emotion at

onset. The emotional stimulus did not need to reappear physically. Mental reappearances – merely thinking about the event– also led to a prolongation of the emotional episode. Social sharing inherently includes mental reappearance of the emotion-eliciting event and frequently includes elaboration of it. Thus, it seems likely that social sharing increases emotion duration.

Social Sharing and Fading Affect

Research on the fading affect bias also supports the view that social sharing prolongs positive emotion. The fading affect bias refers to the finding that intensity of affect evoked by remembering negative autobiographical events fades faster than the intensity of affect evoked by remembering positive autobiographical events (e.g., Walker & Skowronski, 2009). One mechanism thought to be responsible for this effect is rehearsal and sharing of experiences (Walker, Skowronski, Vogl, & Richie, 2009). Across different types of rehearsal, social communication (sharing) was found to be the most frequent type. Increased sharing was related to increased intensity of affect when recalling positive events after a delay and to decreased intensity of affect when recalling negative events after a delay. However, affective fading is not a direct test of emotion duration. Though they may be related, affective fading and emotion duration are different constructs. Whereas emotion duration captures the length of a single emotion episode when it first occurs, affective fading refers to the intensity of emotion that is evoked at a later time when the event is recalled. Fading is likely influenced by both the intensity and duration of the initial emotion episode as well as by events occurring after the episode. In addition, studies of affective fading use a retrospective design making it impossible to untangle changes in affect from biases in memory and judgment. The authors thus advocate a multi-method approach including prospective studies. Studying social sharing prospectively can also provide information about potential moderating variables, such as sharing characteristics and the

listener's response.

In summary, emotions are complex processes that unfold dynamically over time. Studying emotion duration will provide a more thorough understanding of how social sharing impacts affective processes. I hypothesized that sharing positive emotional experiences increases the duration of positive emotion as well as its intensity. I tested this hypothesis by examining social sharing in everyday life and by comparing shared and unshared positive experiences in the laboratory.

How Does Social Sharing Increase and Sustain Positive Emotion?

Little is known about the processes by which social sharing sustains emotion and promotes well-being. Thus, to the extent that social sharing increases emotional intensity and duration, the next major aim of my dissertation research was to uncover the mechanisms by which sharing increases and sustains happiness. Is mere sharing alone sufficient for these affective gains or are certain responses by sharing targets pivotal? What are the characteristics of interpersonal sharing interactions that successfully intensify and prolong happiness?

One mechanism by which sharing is thought to enhance positive emotion is by increasing the perceived importance of the shared event. This may explain why, in one study, benefits of sharing were observed only when responses were viewed as enthusiastic (Reis et al., 2010). An enthusiastic response, which involves being responsive to the event disclosure, may make the positive event seem even more important. Other studies also support the view that how the listener responds is an important moderator of the benefits of social sharing. The benefits of positive event social sharing have been shown to be contingent upon an active and constructive response from the listener (Gable & Reis, 2010). Responsiveness during positive social sharing has been documented using the Perceived Responsiveness to Capitalization Attempts scale,

which conceptualizes responses on two dimensions – active/passive and constructive/destructive (PRCA; Gable et al., 2004). Active and constructive responses are characterized by expressions of excitement, asking many questions, and showing genuine concern. However, it is still unclear what it is specifically about active and constructive responses that enhances positive emotions. Researchers have not measured sharers' appraisals of the importance of the emotion-eliciting event to find out if enthusiastic and active/constructive responses serve to increase the event's importance.

In addition to increasing the importance of the shared event, other characteristics of listeners' responses may increase and sustain positive emotions. Drawing on research on hedonic adaptation (e.g., Brickman & Campbell, 1971; Fujita & Diener, 2005; Wilson & Gilbert, 2008), I investigated a second mechanism by which responses during sharing interactions slow adaptation to positive events and sustain happiness – namely by encouraging appraisals concerning the remarkability of the shared event. Research on hedonic adaptation shows that, over time, the emotional effects of a stimulus fade as people become accustomed to it. Emotions are typically set into motion when events are appraised as novel and goal relevant (Scherer, 2001). When people react emotionally to novel and goal relevant events, they attempt to explain and make sense of those events and change their beliefs, expectations, and goal to accommodate to the events. This sense-making – or "explaining away" allows people to understand their world so that they can predict and control what happens to them (Wilson & Gilbert, 2008). However, sense-making also reduces emotional power because it makes novel, attention-demanding events into ordinary ones that no longer demand attention. In other words, people naturally process emotional events in ways that transform remarkable, uncertain, and attention-grabbing events into familiar, understandable, and certain ones. Processing emotions in ways that explain them is

desirable for negative events because it hastens recovery. For example, when people write about and make sense of traumatic life experiences, the power of those events to dominate their thoughts and cause intense reactions diminishes (Pennebaker, 1997). Wilson and Gilbert argue that the downside to sense-making is that it also speeds recovery from positive events – a process they refer to as the "pleasure paradox."

Ample research supports the paradoxical decrease in positive emotion following sense-making. Uncertainty following a positive event, such as receiving an unexpected monetary gift, prolongs the pleasure people feel from the event. When the reason behind the gift is given ("We like to promote random acts of kindness"), people derive less pleasure (Wilson, Centerbar, Kermer, & Gilbert, 2005). In another study, participants wrote or thought about their happiest moments and either systematically analyzed those moments or simply replayed them. Those who wrote about their happiest moments experienced reduced well-being compared to those who thought about them, especially when analyzing systematically. The authors concluded that writing about positive life events in a systematic and analytical way is associated with reduced positive emotion presumably because deconstructing events in this way makes them more understandable (Lyubomirsky, Sousa, Dickerhoof, 2006). In addition, it appears that using counterfactual thinking (thinking about the absence of a positive event from one's life) is related to improved affective states (Koo, Algoe, Wilson, & Gilbert, 2008). Researchers instructed college students to write about a positive event in one of two ways – by either focusing on how the event might never have happened and how surprising it was, or how it became a part of their lives and how unsurprising it was. Those who focused on the counterfactual and surprising aspects of the event reported more positive affective states (Study 2). Additionally, people who wrote about how they might never have met their romantic partner felt more satisfied with their

relationship compared to those who simply wrote about how they met their partner (Study 4). It seems that focusing on surprising aspects of events keeps the magic of the relationships alive.

Applying the hedonic adaptation model to social sharing, I proposed that sharing positive events sustains emotion because enthusiastic listeners respond to sharing in ways that make the event seem more remarkable and less easily explained, thereby slowing down adaptation to positive life events and maintaining positive emotion.

Hypotheses

Research shows that social sharing of positive life experiences can increase the intensity of positive emotions but it remains uncertain whether sharing also increases duration. The current project examined the effects of sharing on emotion duration, a feature of emotion that takes into account the dynamic time course of the response (Verduyn, 2009). The first aim of the proposed research was to examine whether sharing positive life experiences prolongs the duration of positive emotion as well as increases its intensity.

The second aim was to uncover the processes by which sharing increases and sustains positive emotion, processes that are not well understood. Positive life experiences tend to lose their affective vigor over time and social sharing seems to slow down this process. I hypothesized that sharing intensifies and prolongs happiness by encouraging certain appraisals that slow down adaptation to positive emotions. That is, sharing interactions 1) highlight the *importance* of emotion eliciting event and 2) prevent affective adaption by emphasizing the *remarkable* aspects of the event. Existing literature does not indicate whether appraisals of importance versus remarkability differentially affect emotion outcomes, or whether these appraisals differentially relate to intensity versus duration. Therefore, no a priori hypotheses were made regarding differences across the two types of appraisals or features of emotion.

Hypothesis 1: Social sharing of positive emotional experiences increases the intensity and duration of positive emotions compared to not sharing.

Hypothesis 2: The effect of sharing on increased intensity and duration of positive emotion is explained by increases in appraisals of importance.

Hypothesis 3: The effect of sharing on increased intensity and duration of positive emotion is explained by increases in appraisals of remarkability.

Study 1

Research Design and Methods

Overview

Study 1 examined the benefits associated with the social sharing of a real world positive event – receiving a desirable exam grade. To date, studies on the sharing of positive events have either asked participants to recall life events or have used daily diary approaches. Both of these methods assess positive events that vary across people and may potentially introduce confounds. For example, more significant life events may elicit more positive affect and involve more sharing. In contrast, Study 1 had the benefit of ecological validity because it captured sharing that occurred naturally but at the same time provided a degree of control by keeping the positive life event constant across participants. Receiving news of a good exam score was chosen as an appropriate positive event because it is relatively common and has personal significance to this group of participants.

Undergraduates completed online questionnaires the day of, and one day after, receiving a desirable grade on a midterm exam. Using an adaptation of the day reconstruction technique (Brans et al., 2013), they reported whether they shared the news of their exam grade, with whom and how often they shared, and the intensity and duration of positive emotion. This study was the first investigation to assess participants' reports of the appraisal changes that resulted from the sharing interaction. Participants were asked not only about the occurrence and amount of sharing, but also whether the sharing target responded by highlighting the event's importance and remarkability. To investigate both the occurrence of sharing, and the appraisal changes that resulted from sharing, five substantive groups were created: 1) those who did not share, 2) those whose sharing interactions were characterized by high appraisals of importance but not

remarkability, 3) those whose sharing interactions were characterized by high appraisals of remarkability but not importance, 4) those whose sharing interactions were characterized by high appraisals of both remarkability and importance, and 5) those whose sharing interactions were characterized by low appraisals of both remarkability and importance.

I hypothesized that sharing would be associated with greater intensity and duration of positive emotion than not sharing. I also hypothesized that the effects of sharing on participants' appraisals would matter. That is, sharing that highlights the importance and remarkability of the event would be associated with greater intensity and duration. Existing literature does not indicate whether appraisals of importance and remarkability differentially affect intensity or duration of positive emotion so no a priori hypotheses were made between groups 2 and 3.

Participants

Participants were undergraduates at the University of California, Irvine. During midterm weeks, announcements were made in large undergraduate classes that offer extra credit for research participation. In exchange for extra credit, participants were asked to complete a 5-minute online questionnaire when they first received their exam grade (Time 1) and a 30-minute online questionnaire the evening of the day after they received their exam grade (Time 2). Questionnaire timing was coordinated with instructors. Only participants who indicated that they felt slightly, very, or extremely good about their grade were asked about their positive emotional episode and included in analyses for the current project ($N = 165$). Those who reported feeling neutral or bad about their grade ($N = 255$) completed a modified questionnaire that assessed the relation between sharing of neutral or negative events and emotion intensity and duration, which could be analyzed in future research. Ethnicities reflected that of the UC Irvine student population (36% Asian, 29% Latino, 22% White, and 13% Other or Biracial). The sample

consisted of 133 females and 32 males (mean age = 20.32 years, range = 18 - 42).

Design and Procedure

Participants completed two online questionnaires. By coordinating with instructors, an email announcing that grades were released was sent to students and included a link to a brief questionnaire. This initial questionnaire asked about emotion intensity. Participants who completed this portion of the study were emailed a link to the second questionnaire the following day. The second questionnaire asked about emotion intensity, emotion duration and sharing practices.

Measures

Emotion intensity. Participants first indicated the extent to which they were feeling good or bad about their grade, using a 7-point scale with each point labeled, ranging from 1 *(extremely bad)* to 7 *(extremely good)*. Those who indicated that they were feeling either slightly, very, or extremely good proceeded to answer the following questions about the intensity of their feelings. They were asked, "How happy are you feeling about your grade right now?" Participants indicated the intensity of happiness they felt using a 7-point scale ranging from 1 *(not at all happy)* to 7 *(extremely happy)*. This intensity question was repeated at the beginning of the second questionnaire (the following day).

Emotion duration. Duration was assessed using a modified version of Brans et al.'s (2013) day reconstruction technique. First, to explain the concept of emotion duration to participants, participants were told that an emotional episode ends as soon as the emotion is no longer felt for the first time or as soon as another emotion takes over. They were asked to remember when they first felt happy about their grade and to think about how long this emotion lasted. To indicate emotion duration, a bar representing a total length of 120 minutes

was presented. The bar was divided into eight equal intervals, with each interval representing 15 minutes. The choice of 120 minutes was based on previous studies which indicate that the duration of the majority of emotional episodes falls within this time window (e.g., Verduyn et al., 2009). Options labeled, "The emotion lasted longer than 120 minutes," and "The emotion is still ongoing," were also presented. In cases where participants indicated that the episode was not yet over, they were asked to indicate how long the emotion had lasted up to then.

Social sharing during the emotional episode. After indicating emotion duration, participants were asked about sharing practices *during each 15-minute interval* of the indicated emotion episode. Allowing sharing to vary within the emotional episode avoids the potential confound identified in Verduyn et al. (2009) in which longer emotional episodes provide more sharing opportunities (Brans et al., 2013). First, participants were asked about the mere occurrence of sharing. They indicated whether or not they talked with someone about their grade and/or their feelings about their grade for each 15-minute interval in which their emotion was still ongoing (yes, no). They also indicated how many people they shared with and their relationship with the sharing targets for the overall emotion episode.

Social sharing content. Participants were asked more detailed questions about their interaction with the sharing partner who meant the most to them. First, participants completed an open-ended question which asked them to describe in detail how this person responded. Next, using a 7-point scale ranging from 1 *(strongly disagree)* to 7 *(strongly agree)*, they were asked whether the sharing target responded in ways that highlighted the appraisals of interest in the proposed research. Three items asked about importance appraisals (e.g., "The person I shared with made me feel like getting this grade was important," "The person I shared with made me feel like the grade was a big deal"). Three items asked about remarkability (e.g. "The person I

shared with made me feel that it was remarkable to do so well," "The person I shared with made me feel special that I did so well").

Using these questions, five sharing groups were created: 1) those who did not share, 2) those whose sharing interactions were characterized by high appraisals of importance but not remarkability, 3) those whose sharing interactions were characterized by high appraisals of remarkability but not importance, 4) those whose sharing interactions were characterized by high appraisals of both remarkability and importance, and 5) those whose sharing interactions were characterized by low appraisals of both remarkability and importance. These groups were created by first computing a composite variable that averaged out all three items related to each appraisal. If both composite variables were a "5" (somewhat agree) or higher, this indicated high appraisals of both importance and remarkability and the participant was placed in the fourth group. If a participant reported a "5" or higher on importance appraisals, for example, but lower than a "5" for remarkability appraisals, they were grouped in the second group. If both importance and remarkability items were lower than a "5," they were placed in the fifth group. Creating sharing groups in such a way allowed me to compare the effect of sharing versus not sharing (groups 1 versus all other groups), to compare the effects of each type of appraisal with each other (groups 2 versus 3), and to investigate the effect of both appraisals together (group 4) in a single model.

Appraisals. A series of questions that captured changes in participants' own appraisals of the exam grade were asked at Time 1 and Time 2. Two questions measured appraisals of importance (e.g., How important is this exam grade for you?) and two questions measured appraisals of remarkability (e.g., How remarkable is it to have gotten this exam grade?). Questions used a 7-point scale ranging from 1 *(strongly disagree)* to 7 *(strongly agree)*.

Daily social sharing. To measure overall sharing practices throughout the two days, participants were asked whether or not they told someone about their grade or their feelings about their grade since hearing news of their good grade. They were asked about sharing occurrence (yes, no), number of shared targets, frequency of sharing, and relationship to target (friends, family, etc.)

Demographics and personality. Participants provided information on basic demographic questions such as age, ethnicity, and gender. Because extraversion is related to frequency, intensity and duration of positive emotions (Verduyn & Brans, 2012), the Ten-Item Personality Inventory (TIPI, Gosling, Rentrow, & Swann, 2003) was used to assess personality. The TIPI is a brief version of the larger Big Five personality inventory that measures the five broad personality factors (extraversion, openness, conscientiousness, agreeableness, and neuroticism). Since each sub-scale only has 2 items, the TIPI has been shown to demonstrate relatively low internal reliability (α=.40 to .73) although estimates for test-retest reliability have been shown to be acceptable (α=.72).

Results

Overview of Analyses

Study 1 investigated sharing processes using a naturalistic approach by assessing college students' sharing and emotions after a meaningful life event – receiving a desirable exam grade. Participants reported their emotions the day they found out about their grade (Time 1). One day later they again reported their emotions as well as sharing practices (Time 2). The two-part study also allowed assessment of changes in emotion intensity over time or "fading affect" (Walker, Vogl, &Thompson, 1997).

Key Variables. I assessed whether sharing predicted emotion outcomes in two ways. First, to investigate how the *amount* of sharing was associated with emotion outcomes, I examined the number of sharing partners. Second, to test for how the mere occurrence of sharing, as well as the perception of target's appraisals during sharing, related to emotion outcomes, I divided participants into five groups: 1) those who did not share, 2) those whose sharing interactions were characterized by high appraisals of importance but not remarkability, 3) those whose sharing interactions were characterized by high appraisals of remarkability but not importance, 4) those whose sharing interactions were characterized by high appraisals of both remarkability and importance, and 5) those whose sharing interactions were characterized by low appraisals of both remarkability and importance.

Emotion intensity was tested as a repeated measures outcome (Time 1 and Time 2). This allowed me to investigate the fading of happiness intensity over the course of two days. Emotion duration was tested using three measures: (1) the length of the initial emotional episode experienced immediately after finding out about the good grade; (2) the percentage of time participants reported thinking about their grade since finding out about their grade (i.e., over the

course of the two days), and (3) the percentage of time they spent feeling happy about their grade since finding out their grade.

In the following section, I first provide an overview of sharing in the sample. I then describe analyses that assess the relation between sharing and emotion intensity and duration. To account for the fact that longer episodes of happiness provide more opportunities for sharing, the relation of sharing to emotion duration was also tested using discrete time survival analysis (Singer & Willett, 2003).

Overall Sharing Behavior

Consistent with prior research, the majority of participants shared news of their good grade with at least one other person. About 67% shared during the emotional episode and 87% shared in the two days since finding out about their grade. Sharing was often immediate. Many who shared did so in the first 15 minutes (49%) or 30 minutes (61%) after finding out their grade. Over the course of the two days, participants reported sharing with an average of 2.6 people (SD = 2.13). When people shared, they shared with friends (64%), romantic partners (33%), parents (27%), classmates (25%), and roommates (23%). Only 4% of the sample reported sharing using social media.

Sharing and Emotion Intensity[1]

To assess the relation between the mere occurrence of sharing and change in emotion intensity over time, a repeated measures analysis of variance was conducted on Time 1 and Time 2 emotion intensity with dichotomous (yes/no) sharing as a predictor. There was a marginal decrease in intensity from Time 1 (M = 5.39, SE = .09) to Time 2 (M = 5.20, SE = .13), $F(1,158) = 3.71$, $p = .06$, $\eta^2 = .02$. However, emotional intensity did not differ based on whether or not people shared, $F(1, 158) = 1.07$, $p = .3$, *ns,* $\eta^2 = .007$.

Number of sharing partners and emotional intensity. The number of sharing partners was correlated with intensity at Time 1, $r(159) = .22$, $p = .004$. The number of sharing partners was not correlated with emotion intensity at Time 2 after adjusting for intensity at Time 1, $r(155) = .07$, $p = .39$, *ns.*

Sharing, appraisals, and intensity. To investigate how the occurrence and content of sharing relates to changes in emotion intensity over time, I conducted a repeated measures analysis of variance. The dependent variables were emotion intensity at Time 1 and Time 2. The independent variable was sharing group, that is, whether there was (1) no sharing, or whether sharing was characterized by appraisals of: (2) high importance; (3) high remarkability; (4) high importance & high remarkability; (5) low importance & low remarkability. Overall, intensity decreased from Time 1 ($M = 5.49$, $SE = .07$) to Time 2 ($M = 5.10$, $SE = .10$), $F(1, 152) = 25.28$, $p < .001$, $\eta^2 = .14$. An interaction was also found between time and sharing group, $F(4, 152) = 4.41$, $p = .002$, $\eta^2 = .10$, indicating that the fading of emotion intensity was related to sharing group. The interaction is depicted in Figure 1. At Time 1, no differences in emotion intensity were found between groups, $F(4, 152) = 1.38$, $p = .24$, *ns,* $\eta^2 = .03$. At Time 2, the sharing group with high appraisals of both importance and remarkability were happier ($M = 5.52$, $SD = .87$) than the sharing group with low appraisals of both importance and remarkability ($M = 4.57$, $SD = 1.2$), $t(152) = -3.67$, $p < .001$, and marginally happier than the no sharing group ($M = 5.14$, $SD = .86$), $t(152) = 1.67$, $p = .09$. No other contrasts were significant at Time 2. As can be seen in Figure 1, emotion intensity decreased across time for all groups except for the group with high appraisals of both remarkability and importance.

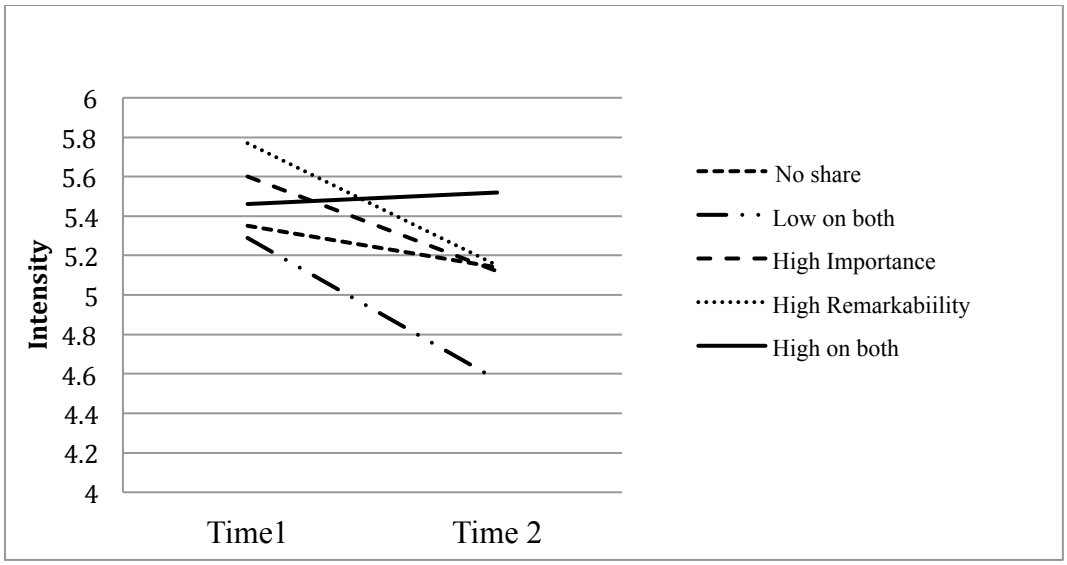


Figure 1. Positive emotion intensity across sharing groups.

Changes in Sharer's Appraisals

Participants reported on their own appraisals of importance and remarkability of the exam grade at Time 1 and Time 2. Participants' appraisals of the importance of their exam grade did not change over time, $F(1, 158) = 0.21$, $p = .65$, *ns*, $\eta^2 = .001$, nor across dichotomous (yes/no) sharing groups, $F(1, 158) = 10.26$, $p = .61$, *ns*, $\eta^2 = .002$, nor was an interaction found between time and sharing group, $F(1, 158) = 1.24$, $p = .27$, *ns,* $\eta^2 = .008$. Appraisals of remarkability also did not change over time, $F(1, 158) = 1.40$, $p = .24$, $\eta^2 = .009$, nor across sharing groups, $F(1, 158) = 3.75$, $p = .06$, *ns*, $\eta^2 = .02$, and no interaction was found between time and sharing group, $F(1, 158) = 0.50$, $p = .48$, *ns,* $\eta^2 = .003$. Changes in participants' own appraisals of importance were not related to perceptions of targets' appraisals, $r(122) = .04$, $p = .69$, *ns*. Similarly, changes in participants' own appraisals of remarkability were not related to perceptions of targets' appraisals, $r(122) = -.05$, $p = .59$, *ns*. These findings indicate that participants' own appraisals of

importance and remarkability were stable over the two days, even when they reported that the sharing interaction made them feel like their grade was more important or remarkable.

Sharing and Duration

People who shared had significantly longer emotional episodes (M = 39.27, SD = 38.02) than people who did not share (M = 16.83, SD = 20.32), $t(158) = 3.92$, $p < .001$, after controlling for initial intensity. People who shared also spent more time thinking about their grade (M = 26.89, SD = 22.39) than those who did not share (M = 19.44, SD = 21.25), $t(154) = 2.09$, $p = .04$. Sharers did not differ significantly in the amount of time they spent feeling happy about their grade compared to non-sharers, $t(154) = 1.83$, $p = .14$, *ns*.

Number of sharing partners and duration. The more partners participants shared with, the longer the episode lasted, $r(156) = .31$, $p < .001$, after controlling for initial intensity. Number of sharing partners was also correlated with the amount of time people reported thinking about, $r(151) = .26$, $p = 001$, and feeling happy about, $r(151) = .23$, $p = .004$, their grade.

Appraisals associated with sharing and emotion duration. To assess whether appraisals associated with sharing were related to emotion duration, ANCOVAs were conducted on each duration outcome: length of emotional episode, percentage of time spent feeling happy about grade and percentage of time thinking about grade. The independent variable was the five sharing groups and initial intensity was included as a covariate. Results are depicted in Figure 2. The length of the emotional episode differed across sharing groups, $F(4, 152) = 5.18$, $p = .001$, $\eta^2 = .12$. Post hoc analyses indicated that the emotional episode lasted longer for the sharing group with high appraisals of importance and remarkability (M = 47.88, SD = 43.38) than for the sharing group with low appraisals (M = 27.75, SD = 29.31), $p = .01$, 95% CI for difference [3.86, 35.05], and the no sharing group (M = 16.21, SD = 21.03), $p < .001$, 95% CI [17.49, 44.96]. The

emotion episode was also longer for the group with high appraisals of importance (M = 34.56, SD = 31.35) than for the no sharing group, p = .04, 95% CI [.84, 34.03].

The amount of time participants thought about their grade also differed across sharing groups, $F(4, 148) = 3.01$, p = .02, η^2 =.08. Post hoc tests showed that the sharing group with high appraisals of both importance and remarkability (M = 31.96, SD = 26.16) thought about their grade more than did the sharing group with low appraisals of importance and remarkability (M = 21.23, SD = 16.35), p = .04, 95% CI [.77, 21.69], and those who did not share (M = 17.09, SD = 17.89), p = .001, 95% CI [6.23, 24.26]. No significant differences were found in the amount of time spent feeling happy about their grade across sharing groups, $F(4, 148) = 1.75$, p = .14, *ns,* η^2 = .04.

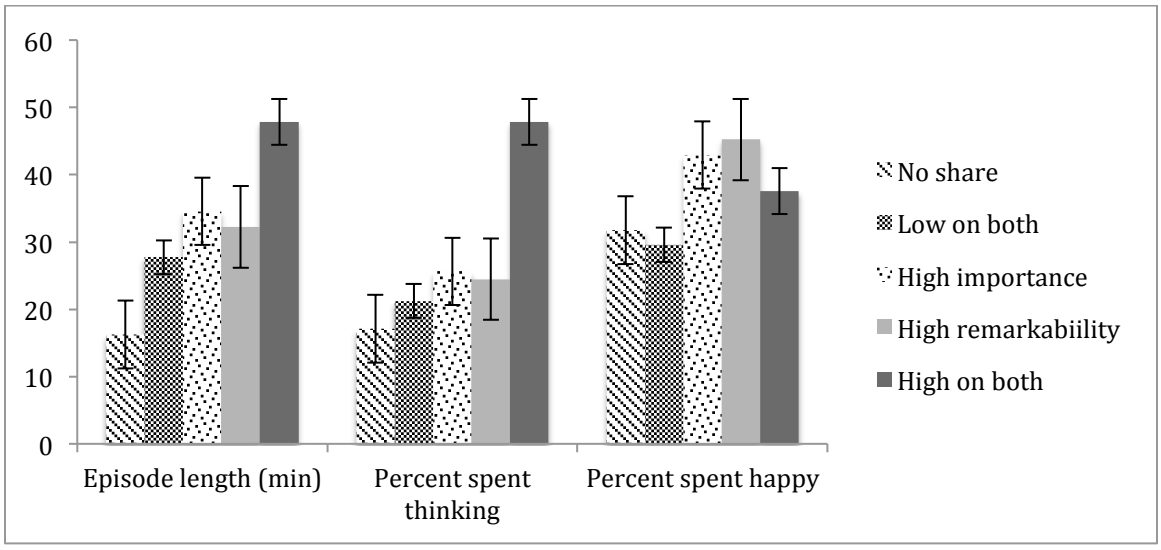


Figure 2. Emotion duration outcomes across sharing groups

Additional Duration Analysis

Longer emotional episodes provide more opportunities for sharing. Therefore, the relation of sharing to emotion duration was also tested using discrete time survival analysis,

which accounts for episode length by assessing sharing during discrete time periods within the emotional episode. Thus, in line with Brans et al. (2013), I measured sharing at a fine-grained level and allowed it to vary within an episode. For this purpose, emotional episodes were segmented into a number of equal intervals and participants indicated whether or not they shared within each interval of the episode.

A discrete-time proportional hazards model (an extension to the proportional hazards model) is well suited to analyze interval durational data and can incorporate time-varying predictors such as social sharing (Singer & Willett, 2003). Discrete-time survival analysis involves the calculation of a hazard rate: the conditional probability that an episode, which has not yet ended at the beginning of an interval, will end during that interval. To test the relationship between sharing and emotion duration, the logit of the hazard rate was modeled as a proxy for emotion duration. That is, the dependent variable in the regression was the conditional probability that an episode ends during an interval, given that it is ongoing at the start of the interval. A higher value indicates shorter duration.

Indicator variables for each interval under study were first included in the regression as predictors. Including this set of predictors yielded a representation of the baseline hazard function (the probability that an emotional episode that had not yet ended would end during that interval). A second set of predictors was the five sharing groups with the no sharing group acting as a reference group. In this model, the coefficient for each dummy variable captured the difference in duration between a specific type of sharing and not sharing. Last, initial intensity was included in the model as a control variable.

Table 2 displays results for this model with the no sharing group as the comparison group. Compared to the no sharing group, all types of sharing were associated with longer

emotional episodes. The largest difference was between not sharing and sharing with appraisals of high importance and remarkability. Compared to not sharing, sharing with high appraisals of both importance and remarkability was associated with a 78% lower probability of an episode ending in a given interval, suggesting a longer emotion duration.

Table 2

Survival Analysis of Sharing and Emotion Duration

Predictors	*OR*	*β*	*SE*
Social sharing			
High in importance but not remarkability	0.34	-1.08**	0.38
High in remarkability but not importance	0.42	-0.88 †	0.47
High in both importance and remarkability	0.22	-1.5***	0.34
Low on both importance and remarkability	0.42	-0.86*	0.39
Baseline emotion intensity	0.84	-0.17	0.15

†$p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$

Summary of Results

In summary, social sharing was associated with positive emotion outcomes in this sample. Overall, sharing was more consistently associated with longer duration of positive emotion or thoughts than with greater intensity of positive emotion. Specifically, the act of sharing versus not sharing was associated with longer episodes of happiness, and with more time thinking about the good grade, but not with an increase in emotional intensity. The amount of sharing (i.e. the number of sharing partners) was associated with emotion duration outcomes, but not with change in intensity. The content of sharing also mattered. People who had sharing interactions in which they perceived the target as reflecting high appraisals of both importance and remarkability had the longest emotion episodes and spent the most time thinking about their score relative to other groups. With respect to intensity, there was an overall decrease in emotion

intensity over time for all groups except for those with high appraisals of both importance and remarkability. Surprisingly, participants' perceptions of the target's appraisals ("The person I shared with made me feel like getting this grade was important) were not correlated with changes in their own appraisals, which were stable over the course of two days. One reason for this may be that participants' own appraisals of exam grades were so strongly held that they were not immediately affected by reflected appraisals from targets, even when these reflected appraisals predicted emotion outcomes. Also, it is possible that a longer interval between Time 1 and Time 2 would have captured more changes in participants' appraisals.

Study 2

Research Design and Methods

Overview

Study 2 used an experimental design to examine the effects of sharing on emotional intensity and duration, as well as the mechanisms underlying the observed effects. Participants completed a creativity test and were informed that their score was exceptionally high. They were then randomly assigned to conditions in which they either (1) shared with a target whose response highlighted the *importance* of the event, (2) shared with a target whose response highlighted the *remarkability* of the event, (3) shared with a target whose response did not alter appraisals of the event, or (4) did not share. Participants' emotions and appraisals were assessed immediately after they received their score on the creativity test (Time 1) and again after sharing, or after a neutral task for those who did not share (Time 2).

To my knowledge, this was the first study of social sharing to elicit emotion in the laboratory using the same positive outcome across participants. Inducing positive emotion in the lab instead of asking about past events avoided a methodological artifact identified in previous research (longer episodes allow for more sharing; Brans et al. 2012) and provided tighter control of the shared event and emotion intensity. This was also the first study of social sharing to vary responses to participants' sharing experimentally. This was done with the intention of making causal inferences to elucidate the processes by which sharing enhances positive emotion. Specifically, this study was designed to test the hypothesis that sharing slows hedonic adaptation and intensifies and prolongs happiness by increasing appraisals of the importance and remarkability of positive events. Participants also answered questions about their demographics as well as personality.

Participants

Participants ($N = 392$) were recruited from the University of California, Irvine, School of Social Science human subject pool. Five participants experienced technical issues during the study and were not included in the final sample. Power analysis using an alpha of .05 indicates this sample size yields acceptable power for a medium sized effect. Ethnicities reported reflected that of the student population (43% Asian, 30% Latino, 16% White, 2% African American and 9% Other or Biracial). The final sample consisted of 387 participants, 311 of whom identified as female and 76 of whom identified as male (mean age = 21.55 years, range = 18 - 59).

Design & Procedure

Participants signed up to take an online study through the university's subject pool. They were told that the study was about social media and that they might chat with another participant online during the session (in reality, these were programmed responses). Sets of 20-40 participants signed up to take the study at the same time in the evenings to create the semblance that they would be chatting with another participant.

Positive emotion was elicited by having each participant complete a creativity test and receive feedback that his or her score was exceptionally high (top 10%). Participants were told that the creativity test measured a special type of intelligence called "Syncretic Skill" that captures abstract thinking and creative mental processes. Participants then completed a questionnaire which asked them to rate how good they were feeling about their score (i.e., intensity of positive emotion) and their appraisals concerning the importance and remarkability of their score. Participants in three sharing conditions were then instructed to describe the task and their score in a computer text message to another participant with whom they were connected. The study interface was programmed to look like the participant was being matched

up with another person. In actuality, participants received scripted text responses. These responses were designed to either: (1) highlight the *importance* of the event, (2) highlight the *remarkability* of the event, or (3) not change the participant's appraisals of the event. Participants in the non-sharing condition did a filler task of watching a video of a man painting a landscape and answered questions about the video. The scripted responses are noted in the Appendix F. Experimental sessions were pilot tested to ensure that the staged creativity test was believable and the experiment flowed naturally.

After sharing, participants reported on emotion intensity, appraisal changes, and completed demographic and personality measures. They then spent 10 minutes answering questions and watching an emotionally neutral video to pass the time so that emotion duration could be measured 10 minutes after sharing.

Measures

Appraisals. To assess appraisal change, a series of items that captured appraisals of the creativity test were asked before and after sharing. Two items measured appraisals of importance and two items measured appraisals of remarkability. Questions used a 7-point scale ranging from 1 *(strongly disagree)* to 7 *(strongly agree)*.

Emotion intensity. Participants indicated the intensity of happiness they felt before and after sharing using a 7-point scale ranging from 1 *(not at all happy)* to 7 *(extremely happy)*.

Emotion duration. Emotion duration was measured at the end of the experimental session after a 10-minute waiting period. Participants were asked to rate how long they felt happy about their performance on the creativity test. They were shown a bar with a total of 10 minutes, reflecting the time they spent watching a 10-minute neutral film after sharing or not sharing. Participants indicated how much of the time they spent thinking about their score and

how much time they spent feeling happy about their score by moving the bar accordingly. Options labeled, “I am still thinking about / feeling happy about my score,” and “I did not think about / feel happy about my score” were also presented.

Demographics and Personality. Participants then provided demographic information including age, ethnicity and gender. Personality traits known to be related to positive affect maintenance were also assessed. Verduyn and Brans (2012) found that extraversion was positively related to the frequency, intensity and duration of positive emotions. Additionally, the trait of openness was considered as another possible trait that may affect sharing behavior in the current study. Thus, the Ten-Item Personality Inventory (TIPI, Gosling, Rentrow, & Swann, 2003) was used to measure personality traits of extraversion and openness. The TIPI is a brief version of the larger personality inventory that measures five broad personality factors (extraversion, openness, conscientiousness, agreeableness, and neuroticism). Since each sub-scale only has 2 items, the TIPI has been shown to demonstrate relatively low internal reliability (α=.40 to .73) although estimates for test-retest reliability have been shown to be acceptable (α=.72).

Results

Overview of Analyses. In preliminary analyses, to identify potentially important covariates, I examined associations between Time 1 emotions and appraisals and Time 2 emotions and appraisals.

Next, I examined whether the intensity and duration of participants' happiness differed by experimental condition, that is, sharing versus not sharing, and whether they differed by the target's response to sharing. The dependent variable used for emotion intensity was the intensity of positive emotion reported at Time 2 adjusting for the intensity reported at Time 1. The dependent variables used for emotion duration were the amount of time participants reported (a) feeling happy about their score, and (b) thinking about their score at Time 2. Emotion intensity at Time 1 was also controlled for in analyses of duration to account for differences in how happy participants felt after the positive outcome.

Next, I assessed whether the intensity and duration of positive emotion were related to the amount of sharing. For the three conditions in which participants shared, the amount of sharing was defined by the number of words participants typed during the sharing interaction.

Finally, I conducted mediation analyses to assess whether changes in appraisals mediated associations between the amount of sharing and the intensity and duration of emotion.

Preliminary Analyses[2]

Predictors of the intensity of happiness. As expected, participants' initial levels of happiness predicted their later happiness intensity, $r(380) = .54$, $p < .001$. Emotion intensity was also correlated with initial appraisals of importance, $r(385) = .31$, $p < .001$ and remarkability, $r(385) = .42$, $p < .001$. Because initial emotion intensity and initial appraisals of the creativity

test score predicted later happiness intensity, these variables were included as covariates in subsequent analyses of emotion intensity.

Predictors of the duration of happiness. Initial intensity of happiness predicted how much time participants spent feeling happy about their score, $r(380) = .31$, $p < .001$, and how much time they spent thinking about their score, $r(378) = .22$, $p < .001$. Time spent feeling happy was also correlated with initial appraisals of importance, $r(379) = .19$, $p < .001$, and remarkability, $r(379) = .33$. Time spent thinking about their score was not correlated with initial appraisals of importance, $r(377) = .07$, $p = .20$, but was correlated with remarkability, $r(377) = .25$, $p < .001$. In summary, participants' initial intensity of happiness and their initial appraisals of the importance and remarkability of their test score predicted how long they spent feeling happy. Therefore these initial measures were included as covariates in subsequent analyses of the duration of happiness.

Effects of the Experimental Conditions on Emotion Intensity, Duration, and Appraisals

Intensity. An ANCOVA on the intensity of happiness at Time 2, adjusting for Time 1 intensity of happiness, showed no differences by condition, $F(3, 377) = 1.14$, $p = .33$, *ns,* $\eta^2 = .009$. Thus, participants who shared about their creativity score were not happier than participants who did not share, and the response to sharing also did not affect the intensity of happiness.

Duration. After adjusting for initial happiness intensity, no differences were found across experimental conditions in how much time participants reported feeling happy, $F(3, 377) = 1.18$, $p = .32$, *ns*, $\eta^2 = .009$ or in how much time they spent thinking about their test score, $F(3, 375) = .09$, $p = .96$, *ns,* $\eta^2 = .001$.

Appraisals. Participants rated the importance and remarkability of their creativity score both before and after sharing. To find out whether sharing affected their appraisals, a repeated measures ANOVA was conducted on participants' appraisals at Time 1 and Time 2 by condition. Participants' appraisals of the importance of their creativity score did not differ over time, $F(1, 377) = 0.14$, $p = .71$, *ns*, $\eta^2 < .001$, or across conditions, $F(3, 377) = 0.06$, $p = .98$, *ns*, $\eta^2 < .001$, nor was an interaction found between time and condition, $F(3, 377) = 1.63$, $p = .18$, *ns,* $\eta^2 = .01$. Appraisals of remarkability actually decreased between Time 1 ($M = 5.29$, $SD = 1.21$) and Time 2 ($M = 5.19$, $SD = 1.19$), $F(1, 377) = 5.15$, $p = .02$, $\eta^2 = .01$. As found for importance, however, remarkability appraisals did not differ across conditions, $F(3, 377) = 0.91$, $p = .44$, *ns*, $\eta^2 = .007$, and no interaction was found between time and condition, $F(3, 377) = 1.18$, $p = .31$, *ns,* $\eta^2 = .009$. Taken together, these findings indicate that the experimental manipulation did not successfully alter participants' appraisals of their test score.

Association between Amount of Sharing and Emotion Intensity, Duration, and Appraisals

Intensity. For participants in the three conditions that involved sharing, the amount of sharing (number of words used in the sharing interaction) was associated with intensity of happiness at Time 2 after adjusting for initial happiness, $r(282) = .13$, $p = .02$.

Duration. After adjusting for initial happiness and appraisals, the amount of sharing was not associated with the duration of feeling happy, $r(282) = -.04$, $p = .55$, *ns*, but was associated with the amount of time participants spent thinking about their score, $r(280) = .12$, $p = .04$.

Appraisals. After adjusting for initial happiness and Time 1 appraisals, the amount of sharing was associated with Time 2 appraisals of importance, $r(280) = .12$, $p = .04$, and remarkability, $r(280) = .12$, $p = .046$. Thus, the amount of sharing predicted changes in appraisals.

Association between Appraisal Change and Emotion Intensity and Duration

Intensity. Time 2 happiness intensity was correlated with Time 2 appraisals of importance, $r(377) = .18$, $p < .001$, and remarkability, $r(377) = .27$, $p < .001$, after adjusting for initial happiness and initial appraisals. Taken together, the results indicate that changes in appraisals of both importance and remarkability predicted intensity of happiness, but these appraisal changes were independent of whether or not participants had shared their test score and the type of response to sharing.

Duration. After adjusting for initial happiness intensity and appraisals, time spent feeling happy was correlated with Time 2 appraisals of remarkability, $r(377) = .22$, $p < .001$, but not importance, $r(377) = .07$, $p = .15$, *ns*. A similar pattern emerged for time spent thinking about score. Time spent thinking about the score was correlated with Time 2 appraisals of remarkability, $r(375) = .12$, $p = .02$, but not importance, $r(375) = .09$, $p = .07$, *ns*. Thus, changes in appraisals of remarkability, but not importance, predicted emotion duration.

Does Appraisal Change Mediate the Association between Amount of Sharing and Emotion Outcomes?

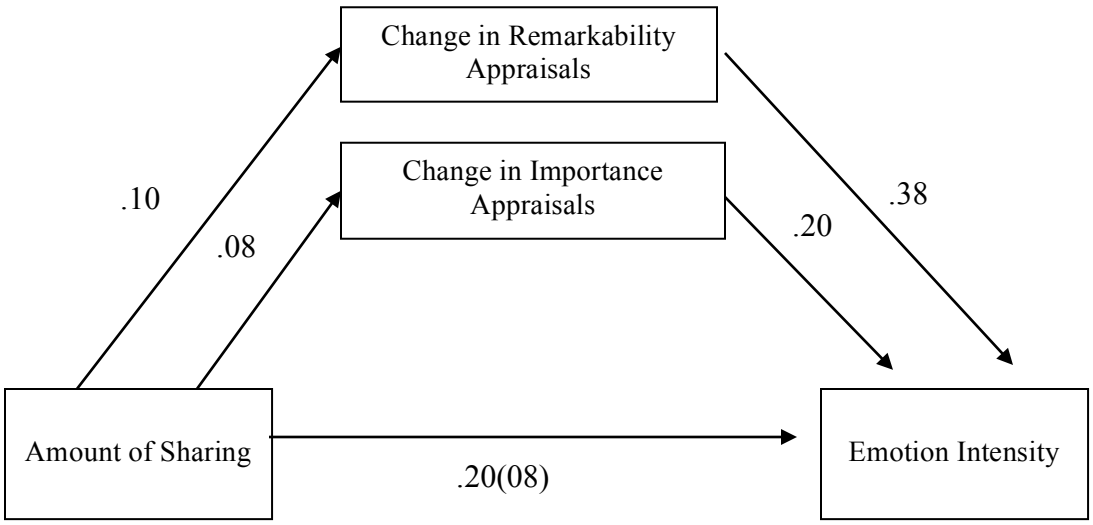
To test the study hypothesis that changes in appraisals mediate the relationship between amount of sharing and emotion outcomes, I ran mediation analyses using the Preacher and Hayes PROCESS macro for the two emotion outcomes that were correlated with sharing length. Thus, I ran two mediation models: one for intensity and one for time spent thinking about score. The two types of appraisals were included in each model as parallel mediators. The model is depicted in Figure 3 below. Covariates in each model were initial emotion intensity and initial appraisals.

For emotion intensity, analyses revealed that taken as a set, the two appraisals mediated the relationship between amount of sharing and Time 2 emotion intensity. The more words used

during sharing, the more people came to view their score on the creativity test as important and remarkable, and the happier participants felt afterwards. That is, changes in these appraisals fully mediated the association between the amount of sharing and the intensity of happiness. The total and direct effects of sharing on emotion intensity were .20 (p = .001), and .08 (p = .17), respectively. The total indirect effect through the two mediators, which represents the difference between the total and direct effects, had a point estimate of .06 and a 95% BCa bootstrap CI of 0.02 to 0.11. An examination of the specific indirect effects showed that only appraisals of remarkability acted as a mediator, with an indirect effect of .04 and a 95% BCa bootstrap CI of 0.01 to 0.08. Appraisals of importance did not contribute to the indirect effect above and beyond that of remarkability appraisals, though it came close (BCa bootstrap CI of 0.003 to 0.06). Changes in remarkability appraisals accounted for nearly 19% of the total effect, while changes in importance accounted for only 8%.

A similar pattern emerged for time spent thinking about creativity score. The more words used during sharing, the more people came to view their score on the creativity test as important and remarkable. The higher these appraisals were, the more time people spent thinking about their score. Thus, these appraisals mediated the relationship between amount of sharing and time spent thinking about their score. Total and direct effects of amount of sharing on time spent thinking were .39, p = .016, and 0.26, p = .11, respectively. The total indirect effect had a point estimate of .07 and a 95% BCa bootstrap CI of 0.01 to 0.14. Again, only appraisals of remarkability acted as a mediator, with an indirect effect of .06 and a 95% BCa bootstrap CI of 0.01 to 0.14. Importance did not contributed to the indirect effect above and beyond remarkability appraisals. Changes in remarkability appraisals accounted for nearly 16% of the total effect.

(a)



(b)

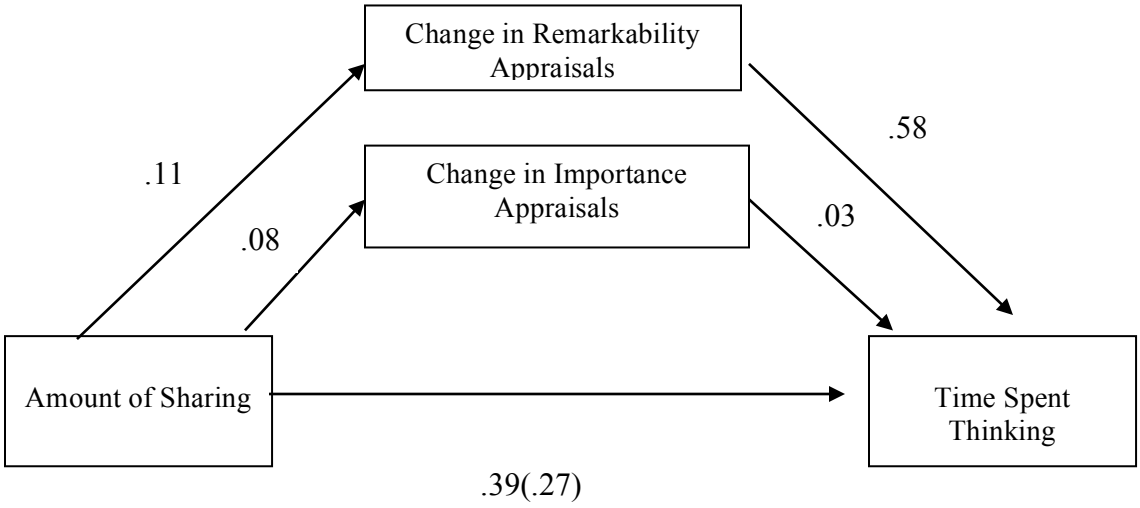


Figure 3. Changes in Appraisals Mediate the Relationship Between Sharing and Emotion Outcomes. Amount of sharing was the total number of words used in sharing interaction and was z-scored. Figure statistics represent regression coefficients. Direct effect is listed in parentheses next to the total effect.

Summary of Results

In sum, the experimental manipulation did not successfully alter participants' appraisals of their test score nor predict emotion outcomes. One reason may be that the differences in the sharing target's responses across conditions were too subtle; the responses differed by only a few key words in the sharing conditions. Another reason may be that receiving a high creativity score was not a meaningful or believable outcome for participants, which may have attenuated effects. Nonetheless, the amount of sharing (the number of words used in sharing interaction) predicted emotion intensity and duration. Additionally, mediation analyses showed that changes in appraisals of importance and remarkability mediated this association, and it was remarkability appraisals that seemed to play the stronger role. These effects are limited by their correlational nature; causal inferences cannot be made. One alternative explanation is that an underlying trait in the person led them to share more and also made them more likely to change appraisals during sharing. Although including the personality traits of extraversion and openness as covariates did not change the findings, it is still possible that another person-level difference could have contributed to the effects. In future research, a stronger experimental paradigm can address these concerns. For example, participants can share with a live person who is instructed to respond in particular ways. Positive emotion could be elicited for a more meaningful outcome, such as an aptitude test which measures one's likelihood to succeed in one's career.

Discussion

Social sharing allows us to savor the positive experiences in our lives. Researchers have found that sharing is associated with increases in emotion intensity, especially when the sharing target is perceived as enthusiastic. A few questions remain: Does sharing also increase the duration of positive emotions? If so, what are the mechanisms by which sharing sustains positive emotion? That is, what are the specific features of enthusiastic responses that increase and prolong positive emotions?

The current study was designed to test several hypotheses. First, I hypothesized that the mere act of sharing, compared to not sharing, would increase emotion intensity and duration. Additionally, I hypothesized that sharing sustains positive emotion because when people share, targets respond in ways that highlight certain appraisals that slow down affective adaptation. According to appraisal theories, emotions are set into motion when events are perceived as important (i.e. goal-relevant) and novel (i.e., attention-grabbing, remarkable). The more novel the event and the more important the goal, the more intense and lasting the resulting emotional experience will be (Smith & Lazarus, 1993; Verduyn et al., 2009). These appraisals also contribute to the benefits of social sharing of positive events. Two predictions follow: 1) The effect of sharing on increased intensity and duration of positive emotion would be most pronounced when sharing interactions highlight the *importance* and *remarkability* of the emotion eliciting event. 2) The *amount* of sharing would be associated with emotion outcomes since it provides more opportunities for such processing. No a priori hypotheses were made regarding differences between the role of importance versus remarkability on emotion outcomes or whether these appraisals differentially relate to intensity versus duration.

Three major findings emerged from this study: (1) Social sharing was associated with increased duration of positive emotions. (2) Although the mere act of sharing was not consistently associated with emotion outcomes, for those who shared, the *amount* of sharing and the *content* of sharing mattered. (3) That is, sharing was associated with positive emotion outcomes particularly when appraisals of importance and remarkability were highlighted.

Study 1 followed participants after they received a desirable exam grade. Sharing was related to longer emotional episodes and more time thinking about the grade. People who had sharing interactions in which they perceived the target as reflecting high appraisals of both importance and remarkability had the longest emotion episodes and spent the most time thinking about their score relative to other groups. There was a decrease in emotion intensity over time for all groups except for those with high appraisals of both importance and remarkability.

Study 2 used an experimental paradigm to elicit positive emotion and to manipulate different types of sharing responses (no sharing, sharing with importance, sharing with remarkability, sharing with no appraisal changes). Although the experimental manipulation did not successfully alter participants' appraisals of their test score nor predict emotion outcomes, the amount of sharing (the number of words used in sharing interaction) predicted emotion intensity and duration. Additionally, mediation analyses showed that changes in appraisals of remarkability mediated this association.

Across both studies, sharing was associated with longer emotional episodes. Social sharing was more consistently associated with longer duration than intensity. One reason for this difference may be that intensity of students' good feelings about their exam grade may be well established because they have set expectations and desires about their grades. As people become accustomed to the outcome of their grade, they move on to other goals and positive emotion

fades. Other people's reactions to the news during sharing may have slowed down the processing of hedonic adaptation and prolonged good feelings, even when it did not change their intensity.

Using discrete time survival analysis as an additional analytic technique also accounted for the methodological artifact that limited the interpretations of Verduyn et al. (2009) in which longer emotions have more opportunities for sharing. To do this, sharing was measured at a fine-grained level and included as a time-varying predictor in the model (as in Brans et al., 2013). Analyses showed that those who shared had longer emotional episodes compared to those who did not share. This was the first study to link sharing with longer positive emotion duration using survival analysis.

In addition to episode duration, two other time-related features of emotions were assessed. In both studies, sharing was associated with time spent thinking about the grade but not time spent feeling happy about the grade. It is puzzling why sharing was associated with other emotion outcomes but not with how much time people reported feeling happy. One possibility is that this question was too abstract; participants may have had different ways of interpreting what it means to be actively feeling happy. Overall, the findings in this dissertation support the idea that investigating time-related features of emotions provide a more thorough understanding of emotional reactions than only investigating intensity. The study of emotion duration is important given that emotions are dynamic processes that unfold over time, rather than momentary incidents (Eaton & Funder, 2001; Hemenover, 2003; Schimmack, Oishi, Diener, & Suh, 2000).

The first hypothesis posited that the mere act of sharing, compared to not sharing, would promote positive emotions. This prediction was partially supported. Sharing versus not sharing was associated with longer duration but not higher intensity in Study 1. In Study 2, there were no

differences in emotion outcomes between those in the sharing conditions and the not sharing condition. One reason for this inconsistency is that the mere act of sharing does not take into account the content of sharing and the amount of sharing. Sharing of any kind involves rehearsal of the positive event, which is only one mechanism that helps maintain good feelings (Gable et al., 2004). However, research has shown that the effect of sharing is contingent on an enthusiastic response from the target. It may have been that some participants had short, or even negative sharing interactions which attenuated the effects of positive sharing interactions.

In an effort to identify the specific features of enthusiastic responses that sustain positive emotion, it was hypothesized that the social process of sharing is vital because sharing allows one to process events in ways that highlight certain features of the event: its importance and remarkability. The data from this dissertation supports these predictions. In Study 1, sharing interactions characterized by high appraisals of both importance and remarkability had the longest episode duration. This group also had no significant decrease in intensity ratings over the course of two days, while intensity in all other sharing (and not sharing) groups did decrease. Study 2 aimed to experimentally test these predictions. Although no differences in experimental conditions were observed for any outcomes, the amount of sharing (the number of words used in the interaction) was associated with increased intensity and duration of emotion. Longer sharing experiences likely allowed participants more opportunities to change their appraisals of importance and remarkability of the event. As such, the association between amount of sharing and positive emotion was mediated by changes in appraisals of remarkability. The more people shared, the more remarkable they deemed their score on the creativity test. These appraisal changes in turn were associated with stronger emotion outcomes.

Limitations and Future Directions

One limitation of the current studies is that observed effects between sharing and emotion outcomes were correlational. Study 2 aimed to causally test hypotheses by experimentally manipulating social sharing and responses from sharing targets. The experimental manipulation did not successfully alter participants' appraisals of their test score, as was intended when designing the study, nor did it affect emotion intensity or duration, as was predicted. This may have been due to the subtlety of the differences across conditions or because the creativity test was not personally meaningful to participants. Nonetheless, to rule out alternative explanations in the correlations observed, relevant covariates were included in all analyses. Sharing effects remained even when controlling for extraversion, openness, initial emotion intensity, and initial appraisals of importance and remarkability. Future research can make causal inferences using a stronger experimental paradigm with longer sharing interactions, live sharing targets, and more personally meaningful positive events.

A second limitation is that both studies involved positive events that were achievement related – an exam grade and a creativity score. Both events may elicit the emotion of pride in addition to joy. Gable and colleagues (2004) argued that pride is the emotion most closely associated with positive event social sharing. However, future research can test the effects of this study across a variety of different types of positive events.

An important point to consider is that positive event social sharing may not always be beneficial or socially appropriate. For example, sharing personal achievements to competitors may be perceived as conceited or may elicit guilt in the sharer (Hovasapian & Campos, in prep). Negative sharing interactions might make one feel worse than if they did not share at all. In Study 1 of this dissertation, participants whose sharing interactions were low on appraisals of

importance and remarkability had the lowest intensity ratings at Time 2 compared to all other participants, even those who did not share.

Future research should assess other features of sharing interactions that work to sustain positive emotion. For example, sharing often involves expressions of gratitude, which might be another mechanism that promotes happiness. Additionally, the perceived authenticity of a target's response may also be an important feature of sharing responses.

Lastly, future work can compare the effects of positive and negative event sharing to provide an expanded understanding of sharing processes. For example, research on the fading affect bias finds that the affect tied to negative emotional events fades faster than the affect tied to positive events (Walker & Skowronski, 2009). Social sharing increases the rate at which negative affect fades (Skowronski & Walker, 2004), but little research has identified specific mechanisms. Drawing on the Explaining Away hypothesis (Wilson & Gilbert, 2008), this dissertation found that appraisal changes of importance and remarkability during positive event sharing work to preserve the affect tied to positive events, thus slowing down hedonic adaptation. By the same token, during negative event sharing, supportive sharing targets may help speed up the "explaining away" of the event by making the event seem more ordinary ("Don't worry, the same thing happened to my friend Joe") and unimportant ("It's just one exam, the final counts more anyway"). In Study 1, data was also collected on participants who received an undesirable grade on the exam but was not analyzed in this study. Future analysis of this data can directly test how social sharing contributes to the fading affect bias – namely, because positive event sharing is typically characterized by increases in appraisals of importance and remarkability whereas negative event sharing is characterized by decreases in appraisals of

importance and remarkability. That is, sharing helps slow down the "explaining away" of positive emotional events and speeds it up for negative ones.

In conclusion, a vast literature on social support explains the processes involved in disclosing difficult life events, but less is known about positive event disclosures. This dissertation shows that when others share good news, sharing targets can respond in ways that increase the event's importance and can identify remarkable features of the event to help the sharer feel better for longer. This project was the first to link sharing with longer emotion duration for positive events after taking into account the methodological nuance described in Brans et al. (2013). It also advances the literature on social sharing by describing specific mechanisms by which sharing promotes lasting emotion.

References

Argyle, M., & Henderson, M. (1984). The rules of friendship. *Journal of Social and Personal Relationships*, *1*, 211–237.

Brans, K., Koval, P., Verduyn, P., Lim, Y. L., & Kuppens, P. (2013). The regulation of negative and positive affect in daily life. *Emotion, 13*(5), 926–39. doi:10.1037/a0032400

Brans, K., Van Mechelen, I., Rimé, B., & Verduyn, P. (2013). The relation between social sharing and the duration of emotional experience. *Cognition & Emotion*, *27*(6), 1023–41. doi:10.1080/02699931.2012.762758

Brickman,P., & Campbell, D. T. (1971).Hedonic relativism and planning the good society. In Appley, M. H. (Ed.), *Adaptation-level theory* (287-305). New York: Academic Press.

Brickman, P., Coates, D., & Janoff-Bulman, R. (1978). Lottery winners and accident victims: Is happiness relative? *Journal of Personality and Social Psychology*, *36*, 917–27.

Bryant, F. B. (1989). A four-factor model of perceived control: Avoiding, coping, obtaining, and savoring. *Journal of Personality, 57*, 773–797.

Bryant, F.B & Veroff, J. (2007). Savoring: A new model of positive experience. Mahwah, NJ: Lawrence Erlbaum Associates.

Cain, C. K., & LeDoux, Joseph E. (2008). Emotional processing and motivation: In search of brain mechanisms. In A. J. Elliot (Ed.), *Handbook of approach and avoidance motivation* (17–34). New York, NY: Psychology Press.

Carver, C. S. (1996). Emergent integration in contemporary personality psychology. *Journal of Research in Personality, 30*, 319–334.

Carver, C. S., & Scheier, M. F. (1990). Origins and functions of positive and negative affect: A control-process view. *Psychological Review*, *97*, 19-35.

Carver, C. S. (2004). Negative affects deriving from the behavioral approach system. *Emotion, 4,* 3–22.

Cohn, M. a, Fredrickson, B. L., Brown, S. L., Mikels, J. a, & Conway, A. M. (2009). Happiness unpacked: positive emotions increase life satisfaction by building resilience. *Emotion. 9*(3), 361–8. doi:10.1037/a0015952

Danner, D. D., Snowdon, D. a, & Friesen, W. V. (2001). Positive emotions in early life and longevity: findings from the nun study. *Journal of Personality and Social Psychology*, *80*(5), 804–13.

Diener, E., Sandvik, E., & Pavot, W. (1991). Happiness is the frequency, not the intensity, of positive versus negative affect. In F. Strack (Ed.), *Subjective well-being: An interdisciplinary perspective* (119-139). Ox- ford, England: Pergamon Press.

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin, 125*, 276–302.

Eaton, L. G., & Funder, D. C. (2001). Emotional experience in daily life: Valence, variability, and rate of change. *Emotion, 1*(4), 413–421. doi:10.1037//1528-3542.1.4.413

Frederick, S. & Loewenstein, G. (1999). Hedonic adaptation. In Kahneman, D., Diener, E. Schwarz, N., (Eds.), *Well-being: The foundations of hedonic psychology.* New York:Russell Sage Foundation.

Fredrickson, B. L. (2001). The Role of Positive Emotions in Positive Psychology. *American Psychologist, 56*(3), 218–226.

Fredrickson, B. L., & Joiner, T. (2002). Positive Emotions Trigger Upward Spirals Toward Emotional Well-Being. *Psychological Science*, *13*(2), 172–175. doi:10.1111/1467-

Fujita, F., & Diener, E. (2005). Life satisfaction set point: stability and change. *Journal of*

Personality and Social Psychology, 88(1), 158–64. doi:10.1037/0022-3514.88.1.158

Gable, S. L., & Haidt, J. (2005). What (and why) is positive psychology? *Review of General Psychology*, *9*(2), 103–110. doi:10.1037/1089-2680.9.2.103

Gable, S. L., & Reis, H. T. (2010). Good news! Capitalizing on positive events in an interpersonal context. In M. P. Zanna (Ed.), *Advances in experimental social psychology*. doi:10.1016/S0065-2601(10)42004-3

Gable, S. L., Reis, H. T., Impett, E. a, & Asher, E. R. (2004). What do you do when things go right? The intrapersonal and interpersonal benefits of sharing positive events. *Journal of Personality and Social Psychology*, *87*(2), 228–45. doi:10.1037/0022-3514.87.2.228

Gable, S. L., Gonzaga, G. C., & Strachman, A. (2006). Will you be there for me when things go right? Supportive responses to positive event disclosures. *Journal of Personality and Social Psychology*, *91*(5), 904–17. doi:10.1037/0022-3514.91.5.904

Gosling, S. D., Rentfrow, P. J., & Swann Jr, W. B. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality*, *37*, 504-528. doi:10.1016/S0092-6566(03)00046-1

Harker, L., & Keltner, D. (2001). Expressions of positive emotion in women's college yearbook pictures and their relationship to personality and life outcomes across adulthood. *Journal of Personality and Social Psychology*, *80*(1), 112–124. doi:10.1037//0022-3514.80.1.112

Helson, H. (1964). Adaptation-level theory. New York: Harper Row.

Hemenover, S. H. (2003). Individual differences in rate of affect change: Studies in affective chronometry. *Journal of Personality and Social Psychology, 85*(1), 121–131. doi:10.1037/0022-3514.85.1.121

Isen, A. M., Daubman, K. A., & Nowicki, G. P. (1987). Positive affect facilitates creative problem

solving. *Journal of Personality and Social Psychology, 52,* 1122-1131.

Koo, M., Algoe, S. B., Wilson, T. D., & Gilbert, D. T. (2008). It's a wonderful life: mentally subtracting positive events improves people's affective states, contrary to their affective forecasts. *Journal of Personality and Social Psychology*, *95*(5), 1217–24. doi:10.1037/a0013316

Langston, C. A. (1994). Capitalizing on and coping with daily-life events: Expressive responses to positive events. *Journal of Personality and Social Psychology*, *67*(6), 1112–1125. doi:10.1037//0022-3514.67.6.1112

Lambert, N. M., Gwinn, a. M., Baumeister, R. F., Strachman, a., Washburn, I. J., Gable, S. L., & Fincham, F. D. (2012). A boost of positive affect: The perks of sharing positive experiences. *Journal of Social and Personal Relationships*, *30*(1), 24–43. doi:10.1177/0265407512449400

Larsen, R.J. & Diener, E. (1987) Emotional response intensity as an individual difference characteristic. *Journal of Research in Personality.* 21, 1-39.

Lazarus, R.S. (1991). Emotion and Adaptation. New York, NY: Oxford Press.

Lench, H. C., Flores, S. A., & Bench, S. W. (2011). Discrete emotions predict changes in cognition, judgment, experience, behavior, and physiology: A meta-analysis of experimental emotion elicitations. *Psychological Bulletin, 137,* 834–855.

Levine, L. J. (1996). The anatomy of disappointment: A naturalistic test of appraisal models of sadness. *Cognition and Emotion, 10,* 337-359.

Lyubomirsky, S. (2010). Hedonic adaptation to positive and negative experiences. In S. Folkman (Ed.), *The Oxford handbook of stress, health, and coping* (200–224). New York: Oxford University Press.

Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: does happiness lead to success? *Psychological Bulletin*, *131*(6), 803–55. doi:10.1037/0033-2909.131.6.803.

Lyubomirsky, S., Sousa, L., & Dickerhoof, R. (2006). The costs and benefits of writing, talking, and thinking about life's triumphs and defeats. *Journal of Personality and Social Psychology*, *90*(4), 692–708. doi:10.1037/0022-3514.90.4.692.

Nezlek, J. B., & Gable, S. L. (2001). Depression as a moderator of relationships between positive daily events and day-to-day psychological adjustment. *Personality and Social Psychology Bulletin*, *27*, 1692–1704.

Parducci , A. (1995). Happiness, pleasure, and judgment: The con- textual theory and its applications. Mahwah, NJ : Erlbaum.

Pennebaker, J. W. (1997). Writing About Emotional Experiences as a Therapeutic Process. *Psychological Science*, *8*(3), 162–166. doi:10.1111/j.1467-9280.1997.tb00403.x

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. Behavior Research Methods, Instruments, & Computers: A *Journal of the Psychonomic Society, 36*(4), 717–31.

Quoidbach, J., Berry, E. V., Hansenne, M., & Mikolajczak, M. (2010). Positive emotion regulation and well-being: Comparing the impact of eight savoring and dampening strategies. *Personality and Individual Differences*, *49*(5), 368–373. doi:10.1016/j.paid.2010.03.048

Reis, H. T., Smith, S. M., Carmichael, C. L., Caprariello, P. a, Tsai, F.-F., Rodrigues, A., & Maniaci, M. R. (2010). Are you happy for me? How sharing positive events with others provides personal and interpersonal benefits. *Journal of Personality and Social Psychology*, *99*(2), 311–29. doi:10.1037/a0018344

Rime, B. (2009). Emotion Elicits the Social Sharing of Emotion: Theory and Empirical Review. *Emotion Review*, *1*(1), 60–85. doi:10.1177/1754073908097189

Riger, S. (1993). What's Wrong with Empowerment. *American Journal of Community Psychology*, *21*(3), 279–292.

Scheff, T. J. (1979). Catharsis in healing, ritual, and drama. Berkeley, CA: University of California Press.

Scherer, K. R. (2001). Appraisal considered as a process of multi- level sequential checking. In Scherer, K.R., Schorr, A., Johnstone, T. (Eds), *Appraisal Processes in Emotion: Theory, Methods, Research* (92-120). New York: Oxford University Press.

Schimmack, U., Oishi, S., Diener, E., & Suh, E. (2000). Facets of Affective Experiences: A Framework for Investigations of Trait Affect. *Personality and Social Psychology Bulletin, 26*(6), 655–668. doi:10.1177/0146167200268002

Shiota M.N., Campos, B., Keltner, D.& Hertenstein M.J. (2004) Positive emotion and the regulation of interpersonal relationships. In P. Philippot & R.S. Feldman (Eds.), *The regulation of emotion* (129- 150). Mahwah, N.J.: Lawrence Erlbaum Associates, Inc.

Singer, J. D., & Willett, J. B. (2003). Applied long- itudinal data analysis: Modeling change and event occurrence. New York, NY: Oxford University Press.

Smith, C. A., & Lazarus, R. S. (1993). Appraisal components, core relational themes, and the emotions. *Cognition & Emotion*, *7*(3-4), 233–269. doi:10.1080/02699939308409189

Spielbeger, C., Gorsuch, R., Lushene, R., Vagg, P., & Jacobs, G. (1983). Manual for the State-Trait Anxiety Inventory, Form Y. Palo Alto, CA: Consulting Psychologists Press.

Sonnemans, J., & Frijda, N. (1994). The structure of subjective emotional intensity. *Cognition & Emotion, 8*, 329–350.

Thoits, P.A. (2011). Mechanisms linking social ties and support to physical and mental health. *Journal of Health and Social Behavior, 52*(2), 145-161.

Verduyn, P., & Brans, K. (2012). The relationship between extraversion, neuroticism and aspects of trait affect. *Personality and Individual Differences*, *52*(6), 664–669. doi:10.1016/j.paid.2011.12.017

Verduyn, P., Delvaux, E., Coillie, H. Van, Tuerlinckx, F., & Mechelen, I. Van. (2009). Predicting the Duration of Emotional Experience : Two Experience Sampling Studies, *Emotion*. *9*(1), 83–91. doi:10.1037/a0014610

Verduyn, P., Van Mechelen, I., & Tuerlinckx, F. (2011). The relation between event processing and the duration of emotional experience. *Emotion, 11*(1), 20–8. doi:10.1037/a0021239

Verduyn, P., Van Mechelen, I., Tuerlinckx, F., Meers, K., & Van Coillie, H. (2009). Intensity profiles of emotional experience over time. *Cognition & Emotion*, *23*(7), 1427–1443. doi:10.1080/02699930902949031

Walker, W. R., & Skowronski, J. J. (2009). The Fading Affect Bias : But What the Hell Is It For ?, *Applied Cognitive Psychology, 23*, 1122–1136. doi:10.1002/acp

Walker, W. R., Skowronski, J. J., Gibbons, J. A., Vogl, R. J., & Ritchie, T. D. (2009). Why people rehearse their memories: frequency of use and relations to the intensity of emotions associated with autobiographical memories. *Memory, 17*(7), 760–73. doi:10.1080/09658210903107846

Waugh, C. E., & Fredrickson, B. L. (2006). Nice to know you: Positive emotions, self-other overlap, and complex understanding in the formation of a new relationship. *The Journal of Positive Psychology*, *1*(2), 93–106. doi:10.1080/17439760500510569

Wilson, T. D., Centerbar, D. B., Kermer, D. a, & Gilbert, D. T. (2005). The pleasures of

uncertainty: prolonging positive moods in ways people do not anticipate. *Journal of Personality and Social Psychology*, *88*(1), 5–21. doi:10.1037/0022-3514.88.1.5

Wilson, T. D., & Gilbert, D. T. (2008). Explaining Away: A Model of Affective Adaptation. *Perspectives on Psychological Science*, *3*(5), 370–386. doi:10.1111/j.1745-6924.2008.00085.x

Wood, J. V, Heimpel, S. a, & Michela, J. L. (2003). Savoring versus dampening: self-esteem differences in regulating positive affect. *Journal of Personality and Social Psychology*, *85*(3), 566–80. doi:10.1037/0022-3514.85.3.566

Zautra, A. J., Schultz, A. S., & Reich, J. W. (2000). The role of everyday events in depressive symptoms for older adults. In G. M. Williamson & D.R. Shaffer (Eds.), *Physical illness and depression in older adults: A handbook of theory, research, and practice* (65–91). New York: Kluwer Academic/Plenum.

Zimet G.D., Dahlem, N.W., Zimet, S.G., Farley G.K, (1988) The multidimensional scale of perceived social support. *Journal of Personality Assessment, 52*(1), 30-41.

Footnotes

[1] In Study 1, including the personality traits of extraversion and openness as covariates did not change the general pattern of results for all emotion outcomes. Thus, they are not included in final analyses.

[2] In Study 2, including the personality traits of extraversion and openness as covariates did not change the general pattern of results for all emotion outcomes. Thus, they are not included in final analyses.

Appendix A

Study 1
Time 1 Questionnaire: Immediately After Receiving Grade

These questions ask about your reactions to the grade you received on your exam.

Have you checked your grade for your exam?

Yes/No

(if no) Because you haven't yet checked your grade, please go online right now and check your score on EEE (your exam grade should be up). When you have done so, check the box below.

__Yes, I have now checked my grade.

How are you feeling about your grade right now?

1	2	3	4	5	6	7
Extremely bad	Very bad	Slightly bad	Neutral	Slightly good	Very good	Extremely good

(participant who indicate 5-7 directed to below questionnaire)

How **happy** are you feeling about your grade right now?

1	2	3	4	5	6	7
Not at all happy						Extremely happy

What grade did you get on the exam?

A+ A A- B+ B B- C+ C C- D F

What grade did you expect to get on the exam?

A+ A A- B+ B B- C+ C C- D F

Using the scale below, please answer the following questions.

1	2	3	4	5	6	7
Not at all						Extremely

How **important** is this exam grade for you?
How **surprised** are you about your exam grade?
How **valuable** it this exam grade for you?
How **unexpected** is getting this exam grade for you?
How **much of a big deal** is this exam grade for you?
How **remarkable** is it to have gotten this exam grade?

Please answer the following questions about yourself.

1. How old are you? ____

2. What is your year in school?

    a. Freshman
    b. Sophomore
    c. Junior
    d. Senior
    e. Other (please specify)

3. What is your major?

    _____

4. Please select the category that best describes your race/ethnicity.

    __European American/ White/ Caucasian
    __African American/ Black
    __Mexican/ Mexican American, Chicano
    __Other Latino (e.g., Guatemalan, Colombian)
    __South Asian, Indian
    __East Asian: Chinese, Korean, Japanese
    __Southeast Asian: Vietnamese, Laotian, Cambodian, etc.
    __ Middle Eastern
    __Filipino
    __Bi-racial, Mixed-Race, Other (please specify)

5. What is your age? ____

6. Please indicate your gender.

    __Male
    __Female
    __Other

7. What is your current GPA in school?
    a. 1.5-2.0

b. 2.1-2.5
c. 2.6-3.0
d. 3.1-3.5
e. 3.6- 4.0
f. no GPA yet

Thank you for filling out the first part of the survey. To complete this study, you will have to complete the 2nd portion of the questionnaire which we will email you with tomorrow. We ask that you complete this section at the end of the night before you go to sleep. For this reason, we will email you the questionnaire at 8pm. To complete the second portion and get the full credit, please tell us your email address. (text box)

If you would like a text reminder to fill out the questionnaire, please type in your phone number below.
(text box)

Appendix B

Study 1

Time 2 Questionnaire: The evening after the day they received their grade

Thank you for your participation in this study. This questionnaire asks about your reactions to your exam grade we asked about yesterday. The questionnaire will take about 45-60 minutes.

How **happy** are you feeling about your grade right now?

1	2	3	4	5	6	7
Not at all happy						Extremely happy

Using the scale below, please answer the following questions about how you are feeling about your exam grade now.

1	2	3	4	5	6	7
Not at all						Extremely

How **important** is this exam grade for you?
How **surprised** are you about your exam grade?
How **valuable** it this exam grade for you?
How **unexpected** is getting this exam grade for you?
How **much of a big deal** is this exam grade for you?
How **remarkable** is it to have gotten this exam grade?

Please take a second to recall how you felt when you first found out about your exam grade yesterday.

How happy were you feeling about your grade that that time?

1	2	3	4	5	6	7
Not at all happy						Extremely happy

ABOUT THE EMOTION EPISODE

Now continue to think about how you felt when you first found out about your exam grade (e..g, happy or sad). We'd like you to think about how long this emotion episode lasted. While you

may have been in a happy or sad mood for a longer period of time, we are interested in the initial positive emotional episode you experienced as a result of finding out your grade.
The end of your emotional episode is when another emotion or a neutral mood took over.

To help remember the episode, please write down what you did before, during, and after the period that you first felt happy about your grade. (text box)

Use the sliding bar below to show how long your emotion episode lasted. This means from the time you first felt happy or sad about your grade to when another emotion took over. You can drag or click on the minutes.

[0 min------15min----30min---45min----60 min----75min----90min----105min----120 min]

__ Emotion episode lasted longer than 120 minutes
__ The emotion episode is still ongoing
__ I didn't experience an emotion episode of happiness

(next page)

You indicated that your emotion episode lasted for XXX minutes.

Next, we'd like you think about whether you shared the news about your grade, or your feelings about your grade, with other people during this emotional episode. Sharing includes talking in person, talking by phone, texting, or chatting online to specific people about your grade.

Using the bar below, please circle all the time intervals during which you shared news about your grade or feelings about your grade at least once. For example, if you told someone immediately and then again 50 minutes late, circle interval A and D. You can circle as many intervals as needed. If you didn't talk to anyone, check the box below.

[0 min------15min----30min---45min----60 min----75min----90min----105min----120 min]
A B C D E F G H

___ I didn't talk to anyone about my grade during the emotional episode.

In total, <u>across this entire emotional episode,</u> how many people did you talk to (in person, by phone, by texting, or by chatting online) about your grade?

___(numerical text box)

<u>During this time frame</u>, which of the following people did you talk to about your grade? (check all that apply)

Romantic partner
Friend

Parent
Family member other than parent
Roommate
Classmate
Other (please describe)
None

Using which form of communication did you share most often?

___Talking on the phone (voice)
___Talking in person
___Texting
___Chatting online (Gchat, Facebook private message, etc).
___Other (please describe)

During the emotional episode, did you share news about your grade through social media (Facebook, Twitter, etc.)

____Yes
____No

(next page)

Next, we'd like you to think about how you felt in the beginning of the emotional episode.

[0 min------15min----30min---45min----60 min----75min----90min----105min----120 min]

(for visual)

Please indicate how **happy** you felt *in the beginning* of the emotion episode **before** you talked to anyone about your grade.

1	2	3	4	5	6	7
Not at all happy						Extremely happy

(next page)

Next, we'd like you to think about the person you shared with during the emotional episode who **meant the most to you.**

What is your relationship to this person? (Circle only one).

Romantic partner
Friend
Parent
Family member other than parent
Roommate
Classmate
Other (please describe)
None

When you shared with this person, what did this person say and do?
Please use 2 or 3 sentences to describe in detail exactly what the person said and did when you told him or her about your grade. *(text box)*

How did **this person** make you feel when you shared the news about your grade?

This person that I shared with….

1	2	3	4	5	6	7
Not at all						Extremely

Made me feel like getting this grade was important.
Talked about how hard it is to get such a good grade.
Made me feel like my grade was insignificant.
Made me feel special that I did so well.
Made me feel that it was remarkable to do so well.
Made getting the grade I received seem ordinary.
Made me feel that the grade was a big deal.
Made me feel bad for talking about it.
Didn't seem interested.

When I shared with this person, I talked about….

I talked about how unsure I was about my grade before finding out my score.
I talked about what would have happened if I didn't study the way I studied.
I talked about how hard I studied
I talked about how happy I was about my grade
I talked about how easy the test was
I talked about how hard the test was
I talked about how intelligent I am
I talked about what would have happened if I didn't get a good grade.
I talked about how surprised I was by the good grade. I talked about how unhappy I was about my grade

(next page)

From the time you *first found out about your grade* until *right now*, what percent of the time did you spend **thinking** about your grade?

[0%-----10%-----20%-----30%----40%----50%----60%----70%----80%-----90%---100%]

From the time you *first found out about your grade* until *right now*, what percent of the time did you spend **feeling happy** about your grade?

[0%-----10%-----20%-----30%----40%----50%----60%----70%----80%-----90%---100%]

YOUR OVERALL SHARING EXPERIENCE

Now we'd like you to think about the period of time from the moment you first found your grade yesterday until right now.

Since finding out your grade, did you talk to anyone about your grade or your feelings about your grade? This includes texting or chatting online to specific people.

___Yes
___No

(if yes, directed to following questions)

Since finding out about your grade, how many people did you talk to about your grade?

___(numerical text box)

Ever since finding out about your grade, which of the following people did you share with?

Romantic partner
Friend
Parent
Family members other than parent
Roommate
Classmate
Other (please describe)
None

Using which form of communication did you share most often?

___Talking on the phone (voice)

___Talking in person
___Texting
___Chatting online (Gchat, Facebook private message, etc).
___Other (please describe)

Ever since finding out about your grade, did you share news about your grade through social media (Facebook, Twitter, etc.)

____Yes
____No

Ever since finding out about your grade, to what extent did you…

1	2	3	4	5	6	7
Not at all						All the time

Engage in activities to help maintain your good feelings.

Think about things to help yourself feel even better.

(Following Wood, Hiempel, and Michela; 2003)

Appendix C

Ten-Item Personality Inventory
Gosling et al. (2003)
7-point Likert scale (1=disagree strongly; 7=agree strongly)

Please indicate the extent to which you agree or disagree with the statement. You should rate the extent to which the pair of traits applies to you, even if one characteristic applies more strongly than the other.

I see myself as....

1. Extraverted, enthusiastic
2. Critical, quarrelsome
3. Dependable, self-disciplined
4. Anxious, easily upset
5. Open to new experience, Complex
6. Reserved, quiet
7. Sympathetic, warm
8. Disorganized, careless
9. Calm, emotionally stable
10. Conventional, uncreative

Appendix D

Syncretic Skill test

After reading these instructions, the "next" button will pop up after a few seconds and you can start

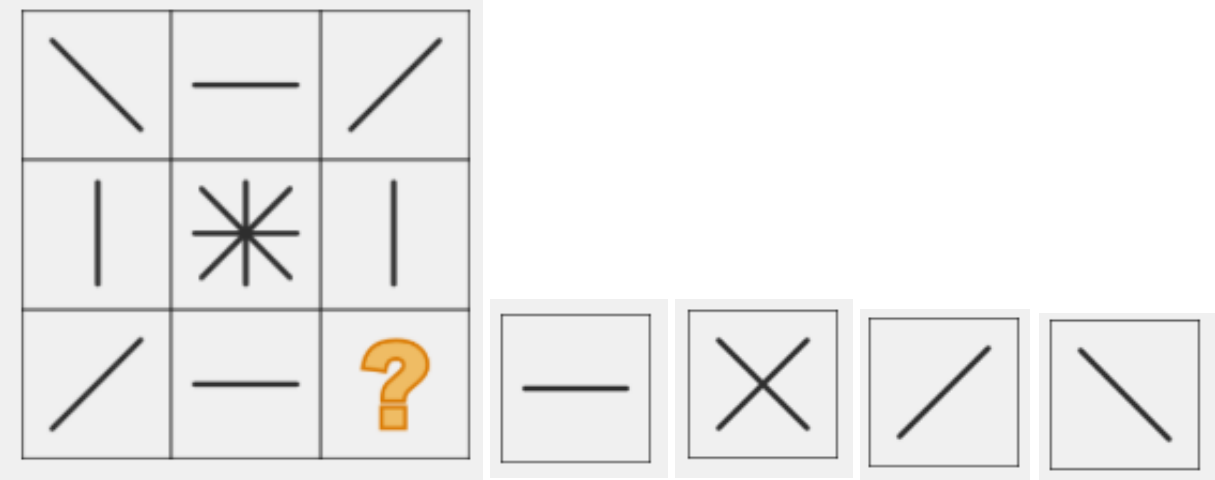
For your first task, you'll be doing a creativity test for "Syncretic Skill." Syncretic skill is a type of intelligence that measures a special type of mental creative ability.
A team of Harvard University psychologists have developed this these questions to test how people process abstract information in a creative way. They believe that syncretic creativity is much different than crystalized knowledge because it measures both abstract thinking and creative mental processes.

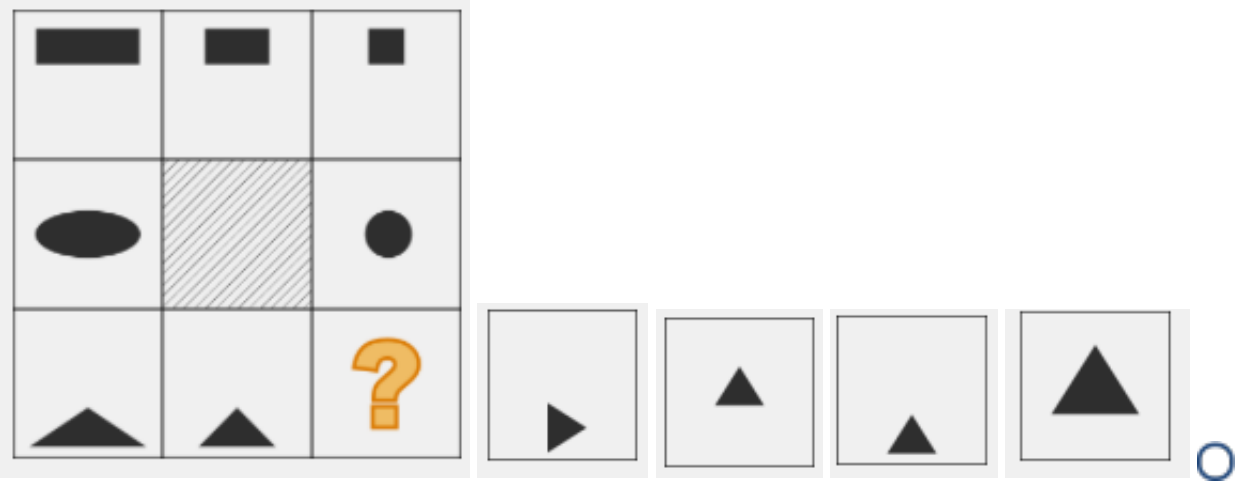
Syncretic creativity is an important part of overall intelligence that often isn't captured by IQ or other measures of intelligence.

Your creativity score will be calculated at the end

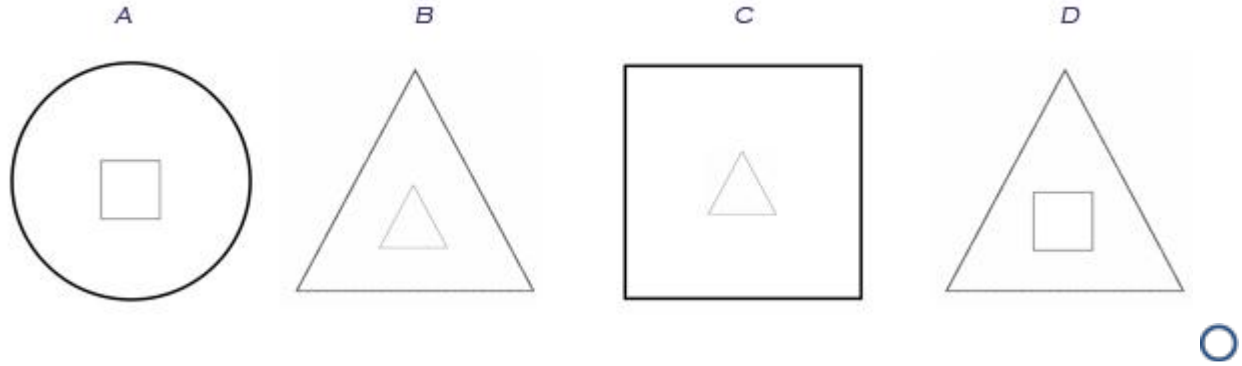
As you complete the syncretic creativity test, try not to spend too much time on each question. Rather, go with your first or "gut" instinct on the question. For many questions, there may be more than one answer.

Which figure logically belongs on the spot of the question mark?

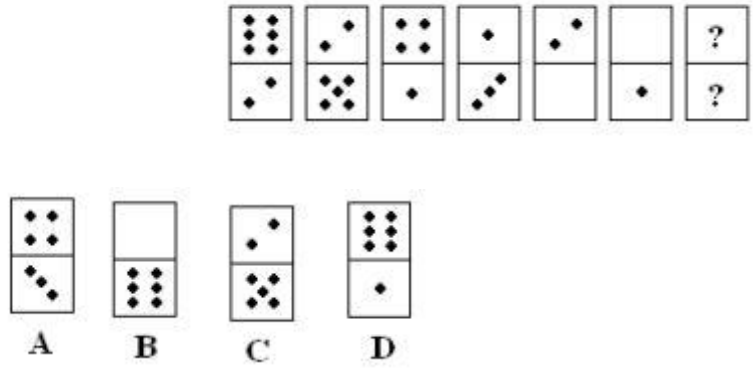




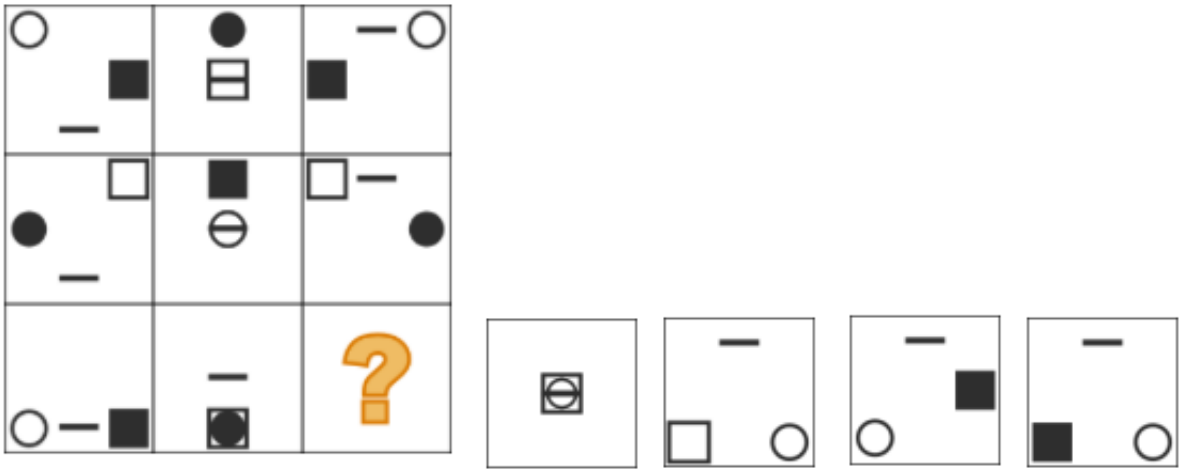
Which of the figures below, is least like the other three?



Which figure is next in the series?



Which figure logically belongs on the spot of the question mark?



Which of these words do you think connect to both SUBMARINE and CAMERA? (SELECT ALL THAT APPLY)

Watertight

Film

Lens

Battery

Door

Egg

Octopus

Which of these words do you think connect to both CAR and TREE? (SELECT ALL THAT APPLY)

Caterpillar

Leaf Rubber

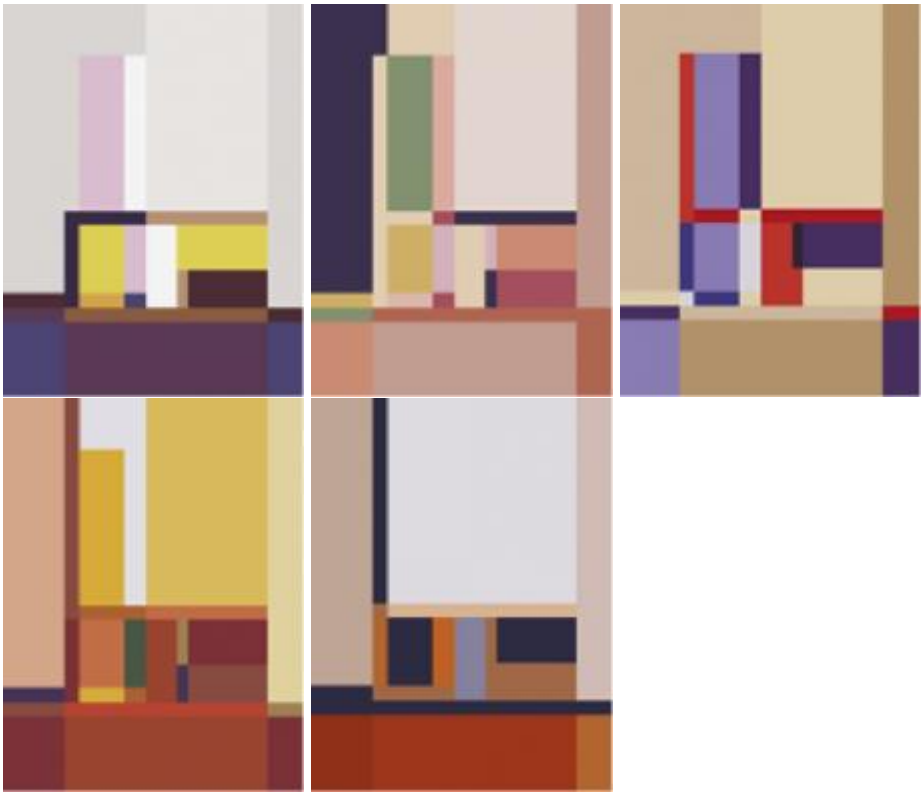
Temple

Dynamic

Post

Home

If you had to pick one, which one of the following do you prefer?



What should be instead of the question marks?

><+==><+??

==

+=

><

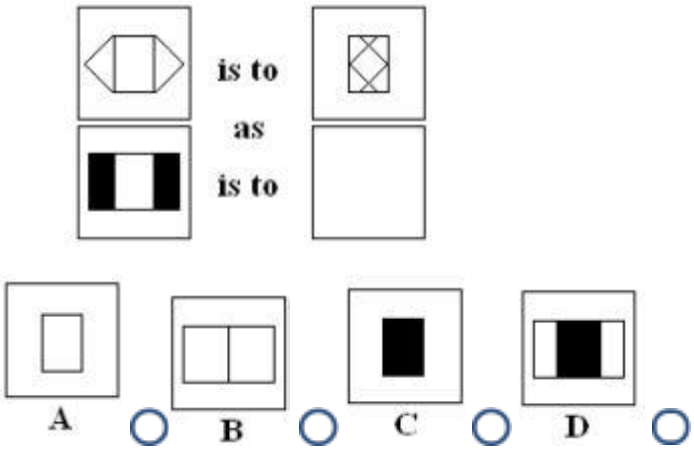
<+

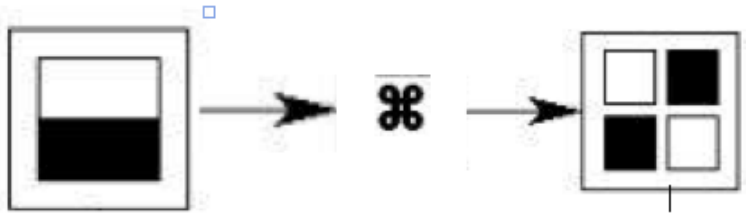
Click on the area of the image that **stands out the most.**

Which of the below figures can be composed from the loose parts?

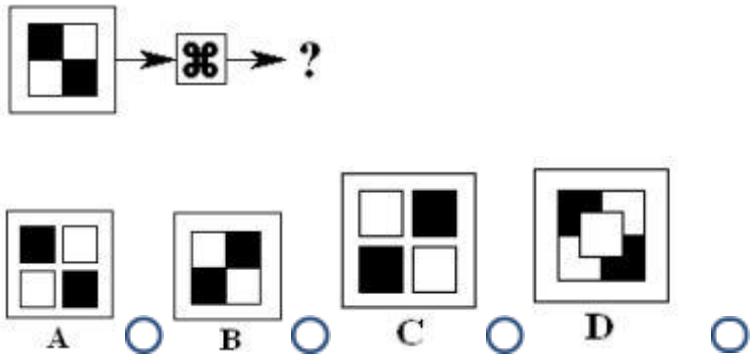
Click to write the question text

Which figure completes the statement?

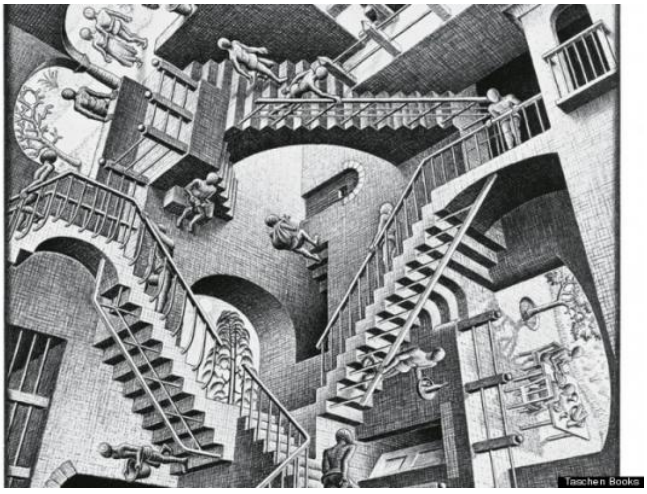




For the following question, please refer to the figure above.



Click on the area of the image that **seems most complex.**

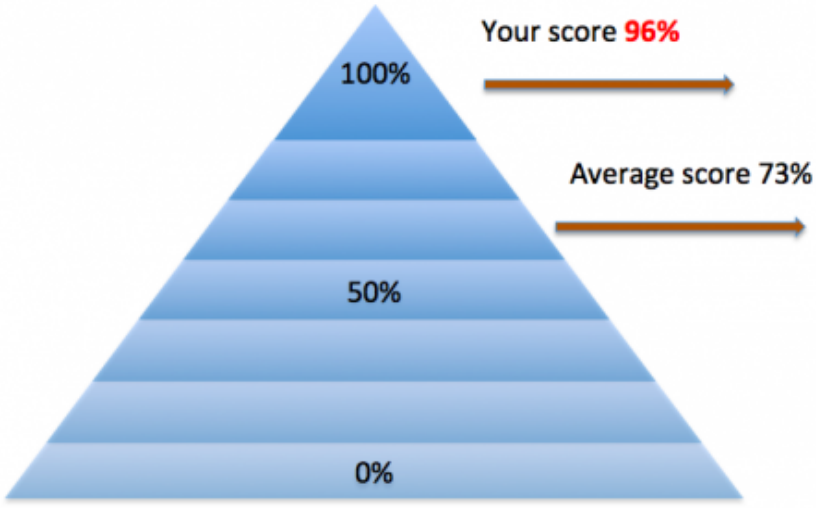


Results- Processing

Please wait while your score is calculated.

Results

Congratulations! You received a 96% on the creativity test!



Appendix E

Questionnaire for Study 2
(Example: Importance condition)

How happy do you feel about your performance on the creativity test?

1	2	3	4	5	6	7
Not at all						Extremely

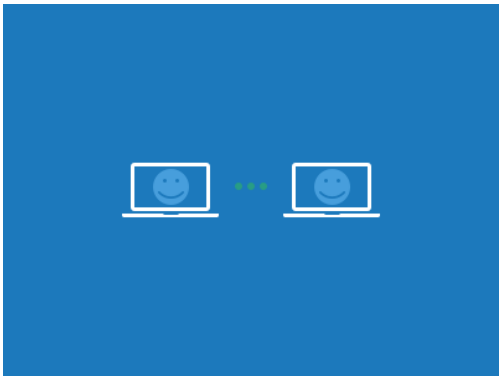
Using the scale below, please rate your agreement to the following statements.
Strongly Disagree, Disagree, Somewhat Disagree, Neither Agree/Disagree, Somewhat Agree, Agree

It was a fun test to do.
Creativity is an important skill.
My score on the test was remarkable.
My performance on the test was disappointing.
Being imaginative is valuable.
I feel like I did extraordinarily well
This test took me longer than I thought.
My performance on the creativity test was unexpected.

We will now connect you with another person participating right now. Please wait **10 seconds** until you are connected.

(after 5 seconds)

We will now connect you with another person participating right now. Please wait **5 seconds** until you are connected.



Connecting to //134.95.0.111/chatserver/ Please wait....

You are now connected to Casey, who participated **in a different task rating videos.**

To begin chatting, type in your **first name**

Waiting for partner to respond...

Connected to //134.95.0.111/chatserver/

Casey: Hi ${q://QID123/ChoiceTextEntryValue}. I'm Casey. It says here you did some kind of creativity test? What was it like and how did you do?

Reply:

Waiting for partner to respond...

Connected to //134.95.0.111/chatserver/

Casey: Oh nice. I feel like creativity is a really important thing to be good at. My stuff was diffrent. It was just some questions and videos to watch. Kinda random. I guess its part of the study to be doing different things.

But that's great you did so well. Creativitys such a valuable skill in a lot of areas of life.

Reply:

*******AUTO MESSAGE: It's time to move on to the next task. Please finish up the conversation and click on the "next" button.*******

Connected to //134.95.0.111/chatserver/

Casey: hey, so it says here that we have to stop now. Bye!

Reply:

Disconnecting //134.95.0.111/chatserver/ Please wait while you are redirected to the next part of the survey.

After Sharing:

The next set of questions ask about the two tasks you completed- the creativity test and the video you watched. While you may have answered similar questions earlier, these questions are about how you feel now.

How happy do you feel about your performance on the creativity test?

1	2	3	4	5	6	7
Not at all						Extremely

How interested are you in painting?

1	2	3	4	5	6	7
Not at all						Extremely

The following questions are about **the video you watched.** Using the scale below, please rate your agreement to the following statements.

Strongly Disagree, Disagree, Somewhat Disagree, Neither Agree/Disagree, Somewhat Agree, Agree

It was a boring video to watch.
Working with your hands is important.
This video was relevant to my skills and hobbies.
It was an interesting video to watch.
The man in the video seemed interesting.
I learned a lot from watching the video.
Painting is not for everyone. I would watch this video again.

Using the scale below, please rate your agreement to the following statements.

Strongly Disagree, Disagree, Somewhat Disagree, Neither Agree/Disagree, Somewhat Agree, Agree

It was a fun test to do.
Creativity is an important skill.
My score on the test was remarkable.
My performance on the test was disappointing.
Being imaginative is valuable.
I feel like I did extraordinarily well
This test took me longer than I thought.
My performance on the creativity test was unexpected.

How much time did you spend **feeling happy** about your score on the creativity test?

The bar below represents the time after you took the creativity test to right now. Slide the

bar to indicate how much time you spent feeling happy about your score.
Note: The following scale is from 0 minutes (right when you found out about your score) to 10 minutes (right now).

How much time did you spend **thinking** about your score on the creativity test?

The bar below represents the time after you took the creativity test to right now. Slide the bar to indicate how much time you spent feeling happy about your score.
Note: The following scale is from 0 minutes (right when you found out about your score) to 10 minutes (right now).

Appendix F

Study 2 Scripted Sharing Responses

Scripted text responses purportedly from sharing partner by condition (typos were intentional):

Condition 1 *(responses highlighting importance)*

> Casey: Oh nice. I feel like creativity is a really important thing to be good at. My stuff was diffrent. It was just some questions and videos to watch. Kinda random. I guess its part of the study to be doing different things.
>
> But that's great you did so well. Creativitys such a valuable skill in a lot of areas of life.

Condition 2 *(responses highlighting remarkability)*

> Casey: Oh nice. I feel like creativity is a special skill that not many people have. My stuff was diffrent. It was just some questions and videos to watch. Kinda random. I guess its part of the study to be doing different things.
>
> But that's amazing you did so well. Creativitys so unique that it's kind of surprising when you see it.

Condition 3 *(no appraisal changes)*

> Casey: Oh nice. My stuff was diffrent. It was just some questions and videos to watch. Kinda random. I guess its part of the study to be doing different things.

Condition 4 *(participant watches an emotionally neutral film about painting)*