

The impact of general perceived self-efficacy on regret

Jessica Boemker

Miami University

Abstract

The purpose of this study was to shed light on the relationship between perceived self-efficacy and regret. I measured regret by its two subcomponents, cognitive regret and affective regret . I hypothesized first that as perceived self-efficacy increases, so too would the experience of cognitive regret. Second, I predicted that as perceived self-efficacy decreases, the experience of affective regret would increase. I expected that people with more perceived self-efficacy, believing themselves more capable globally, would be more likely to reflect on and learn from their mistakes. In contrast, I thought people with less perceived self-efficacy would tend to focus on the emotional distress that accompanies regret, feeling less able to have modified their past decisions. However, my hypotheses were not supported by the data. Although my predictions were not supported, the goal of promoting the most functional regret experience possible remains. Future research could establish a causal relationship between perceived self-efficacy, both general and specific, and regret.

Keywords: regret, perceived self-efficacy, counterfactual thought

The impact of general perceived self-efficacy on regret

Everyone wants to live their best life. However, there is great variance across people in their ability to achieve this objective. Although it is unclear why such differences in quality of life exist, one possibility concerns the way people with differing levels of perceived self-efficacy handle life's difficulties; specifically, regrets. Perceived self-efficacy refers generally to individuals' beliefs about their capabilities and ability to meet goals (Ajzen, 2002; Karademas, 2006; Schwarzer, Mueller, & Greenglass, 1999). Individuals who believe themselves to be very capable have high perceived self-efficacy; the opposite is true for low self-efficacy. The purpose of the current work is to determine if self-efficacy predicts feelings of regret. Establishing determinants of regret is important because repetitive, excess regret can cause rumination (Roese et al., 2009). Holding onto regrets for too long can become a barrier to moving on in life. This work is key because it could allow people to mitigate and learn from such experiences.

Counterfactual Thought and Regret

The concept of counterfactual thinking is foundational to thinking critically about regret. Counterfactuals can be thought of as mental alternatives to past events (Epstude & Roese, 2008). Negative outcomes evoke counterfactual thoughts about how things could have been better, a precursor to regret (Markman, Gavanski, Sherman, & McMullen, 1993). When engaged in counterfactual thinking, individuals envision how altering just one facet of an event could have had far-reaching effects on reality. Counterfactual thoughts typically parallel thoughts about reality, except for changing one key feature of a situation (Epstude & Roese, 2008).

Regret is a negative emotion stemming from an upward counterfactual thought about the self (Gilovich & Medvec, 1995; Zeelenberg, 1999). In other words, it is a negative emotional reaction following the insight that one's own actions triggered events that could have turned out

better. It is distinct from other negative emotions such as guilt, disappointment, and sorrow (Buchanan, Summerville, Lehmann, & Reb, 2016). Notably, regret occurs following unfavorable outcomes caused by one's own doing, not by others. More than just a feeling, regret reflects a cognitive understanding of a personal mistake. This cognitive awareness comes in part from counterfactual thoughts about how things could have been different (Epstude & Roese, 2008).

The idea that regret is a mixture of both cognition and emotion is reflected in the Regret Elements Scale (RES), which contains both affective and cognitive subscales (Buchanan et al., 2016). The affective component of regret reflects the degree of emotional distress associated with an experience and concerns how individuals feel as a result of their choices. This "feeling" component is not associated with learning from past mistakes and instead is linked to decreased well-being and life satisfaction. On the other hand, the cognitive component of regret reflects one's intellectual understanding of why an experience went wrong and its implications for future decisions. This "rational" component is influenced by the extent to which individuals feel a situation is under their control. When individuals experience cognitive regret and understand what they did wrong, they should be better able to avoid repeating their mistakes.

Cognitive Appraisals and Opportunity

Cognitive appraisals, or an individual's judgment of a situation, affect emotional responses (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). In the context of regret, people appraise the type and amount of opportunity in a given situation and adjust their interpretation of the event accordingly. However, there is some debate about the role of opportunity in the experience of regret. Taking a functional perspective on regret, Roese and Summerville (2005) developed the opportunity principle, in which they argued that one reason we feel regret for past decisions is because we recognize having created a barrier to an ongoing

goal. This regret persists even when the goal is still attainable by other means. Therefore, they reasoned that one function of regret is to learn from past mistakes. However, Beike, Markman, and Karadogan (2009) disagree on a fundamental level and argue that regret is a dysfunctional emotion. Rather than impacting ongoing goals, they argue that regret occurs when we recognize a lost opportunity for change. In other words, Beike, Markman, and Karadogan (2009) contend that we experience regret for choices we should have made differently at the time, particularly when such choices have irreversible consequences on our current situation. They named this notion the lost opportunity principle and directly contrast it with Roese and Summerville's (2005) future opportunity principle.

In response, Summerville (2011) took a second look at the opportunity principles of regret. She concluded that regret followed both the lost and future opportunity principles, depending on the circumstances and timing after an incident. Immediately following an incident, Summerville (2011) states that regret will follow the lost opportunity principle as the individual dwells on what they have just done. However, Summerville (2011) argues that in the long run, regret follows the future opportunity principle as we consider the repercussions of our choices on the circumstances impacting us still. Broadly speaking, if an opportunity to change an outcome still exists, regret will persist and encourage us to focus our efforts there. If opportunity does not exist, we will shift our focus to feeling better about the current reality.

These works illustrate how regret is impacted by opportunity in general, but how does opportunity shape the cognitive and affective components of regret? According to the functional theory of counterfactual thinking, counterfactual thoughts serve the primary and secondary purposes of behavioral and affective regulation, respectively (Roese & Epstude, 2017). Opportunity has been called the "master moderator" linking counterfactual thought and

behavioral change (Roese & Epstude, 2017, pp. 13). When opportunity to make changes is high, counterfactuals serve behavioral regulation functions. When given the opportunity to make up for their mistakes, individuals will have an increased cognitive understanding of what went wrong and should be motivated to perform better in the future.

Perceived Self-Efficacy and the Experience of Regret

Perceived self-efficacy may be implicated in individuals' perceptions of opportunity. As noted earlier, perceived self-efficacy refers to beliefs about one's own abilities in a given domain (Ajzen, 2002; Karademas, 2006; Schwarzer, Mueller, & Greenglass, 1999). In this study, I will focus on general perceived self-efficacy, or beliefs about one's global capabilities (Schwarzer, Mueller, & Greenglass, 1999). At its core, perceived self-efficacy is about control. People with high perceived self-efficacy believe they can accomplish any task or goal. In contrast, people with low perceived self-efficacy believe they are at the mercy of outside factors and feel less capable of meeting challenges.

There is a logical relationship between one's perceived self-efficacy and their experience of regret. People with high perceived self-efficacy believe themselves to be capable individuals and, as such, recognize more opportunities before them. Likewise, when people believe they are capable of an action, they are more likely to perform it (Ajzen, 2002). In line with the future opportunity principle of regret, if an individual sees an opportunity to make things right still, they should experience more cognitive regret as they consider their present options. In contrast, people with lower perceived self-efficacy do not believe in their abilities to effect change and will not recognize the opportunities that lay before them. This may also cause them to have a harder time envisioning how their decisions could be altered.

Although the future opportunity principle of regret could account for changes in cognitive regret, the same would not be expected of affective regret. The future opportunity principle is rooted in the functional theory of counterfactual thought. As affective regret is not related to behavioral change, it would not be related to the future opportunity principle of regret in the same way. Instead, variations in affective regret would be related to perceived self-efficacy more directly. Bandura (1994) states that low perceived self-efficacy is associated with an increase in both depression and anxiety. Likewise, he stated that people with lower perceived self-efficacy are more likely to ruminate over negative thoughts and personal failings (Bandura, 1994). Taken together, Bandura's findings offer support for an association between perceived self-efficacy, negative affect, and rumination. Thus, it follows that low perceived self-efficacy ought to coincide with affective regret.

Although there is a logical relationship between perceived self-efficacy and opportunity, no work to date has investigated the possible links between perceived self-efficacy and the cognitive and affective components of regret. Given that perceived self-efficacy is linked to opportunity, I predict that as perceived self-efficacy increases, so too will the experience of cognitive regret. Additionally, I predict that as perceived self-efficacy decreases, the experience of affective regret will increase. Individuals with higher levels of perceived self-efficacy will reflect more on the roots of their mistakes in an effort to prevent them in the future, reflecting an inherent tendency to focus on their abilities rather than limitations. Individuals lower in perceived self-efficacy—lacking this insight—will focus more on the negative feelings associated with regret, feeling powerless to have changed the seemingly inevitable outcome of a situation.

Method

Participants

Two hundred thirty eight students from an introductory psychology class participated in exchange for class credit. After exclusions, the final sample consisted of two hundred and thirty-two students (22.6% male, 76.5% female, 0.8% other; 45.5% White, 3.5% Black, 1.6% Hispanic, 7.9% Asian, 1.4% American Indian or Alaskan Native, and 0.7% Native Hawaiian or Pacific Islander). I excluded data from non-native English speaking students because evidence shows that individuals experience emotions less strongly in a second language (Conrad, Recio, & Jacobs, 2011). Additionally, I excluded participants who did not follow instructions or complete the whole survey, as their results would be meaningless if incomplete. These exclusions did not make any changes to the significance of the results.

Materials

To assess perceived self-efficacy, participants completed the 10-item General Perceived Self Efficacy Scale (GPSE; Schwarzer, Mueller, & Greenglass, 1999). They responded to items like, “It is easy for me to stick to my aims and accomplish my goals,” on a scale ranging from (1) “Not at all true” to (4) “Very true.” I averaged responses across all items to create a composite score for perceived self-efficacy, with larger values reflecting greater efficacy. The scale showed good reliability, $\alpha = .83$.

To assess cognitive and affective regret, participants completed the 10-item Regret Elements Scale (RES; Buchanan et al., 2016). They completed five items such as, “I feel like kicking myself” (affective regret), and five additional items such as, “Things would have gone better if I had chosen another option” (cognitive regret), on (1) “Strongly Disagree” to (7) “Strongly Agree” scales. I separately averaged responses on the affective and cognitive subscales to create composite scores for affective and cognitive regret, with larger values reflecting

more of both types of regret. Both scales showed good reliability, $\alpha = .88$ (affective) and $.96$ (cognitive). For both the RES and the GPSE, participants completed items within each in a randomized order.

Procedure

Participants arrived at the lab for a study on decisions and experiences. After consenting to the study, participants completed the GPSE scale, a two-minute regret elicitation task, and the RES scale. For this task, participants read and responded to the following instructions (modified from Buchanan, Summerville, Lehmann & Reb, 2016; Roese & Summerville, 2005):

People often see how the past might have been better. You might have acted differently, said something different, and subsequent events might then have unfolded in a different way. Have you ever had one of these thoughts about what might have been that was especially vivid, compelling, or obvious to you? Something you couldn't help but think about repeatedly? Consider a decision you made that negatively affected an outcome, where you wished the decision and/or outcome was different. Think about a time when you felt your situation would have been better, if only you had behaved differently.

Picture this situation in your mind. Try and remember as vividly as you can what this past situation was like. Think of what happened to make you feel this way, and how you felt in this particular situation. When you have this memory clearly in mind, answer the following questions:

1. Tell us in detail what happened to cause you to feel this emotion.
2. Tell us in as much detail as you can what you were feeling and thinking.
3. Tell us about what you did and what you said.

As much as possible, write your description so that someone reading it would feel the way you felt from reading your description.

Participants completed the GPSE first, followed by the regret elicitation task and finally the RES. Following this, participants reported basic demographic information, were debriefed, and thanked for their participation.

Results

I had two hypotheses, each of which I analyzed separately. First, I predicted that as perceived self-efficacy increases, so too will the experience of cognitive regret. To test this hypothesis, I performed a simple linear regression analysis on the relationship between perceived self-efficacy and cognitive regret. I found that as self-efficacy increased, cognitive regret did not increase, $\beta = -0.02$, $t(230) = -0.30$, $p = 0.76$, see Figure 1. Contrary to my prediction, participants with greater perceived self-efficacy did not think more about how a regrettable situation could have been altered.

For my second hypothesis, I predicted that as perceived self-efficacy decreases, the experience of affective regret would increase. As with my first hypothesis, I used a simple linear regression analysis on the relationship between perceived self efficacy and affective regret. I found that as self-efficacy decreased, affective regret did not increase, $\beta = -0.098$, $t(230) = -1.49$, $p = 0.14$, see Figure 1. People with less perceived self-efficacy did not think more about their negative emotions when faced with regret.

Discussion

Considering the relationship between perceived self-efficacy and regret is vital to understanding how individuals can learn from and respond to feelings of regret. I sought to answer this question through a correlational study on individuals' levels of perceived self-

efficacy and their experiences of regret. I expected that individuals with greater perceived self-efficacy would tend towards cognitive regret, and that individuals with less perceived self-efficacy would experience more affective regret. However, neither of these predictions were supported by the data. My reasoning was based in part on the idea of cognitive appraisals of opportunity, where the opportunity in question refers to a person's belief about his or her own capabilities. I expected that people with greater perceived self-efficacy, believing themselves capable of altering decisions both past and future, would be more inclined to think of their poor choices when experiencing regret. Likewise, I thought that those with less perceived self-efficacy would dwell on their emotional distress instead, feeling unable to do much else. Therefore, those with greater perceived self-efficacy were expected to experience regret in a more constructive way, viewing their mistakes as lessons from which to learn. In contrast, I believed individuals lower in perceived self-efficacy would have been less likely to learn from their mistakes, as they failed to consider the decision-making aspect of regret. Given the null results of the present study, it is unlikely that the concepts of cognitive and affective regret are related to perceived self-efficacy in the way that I thought.

My predictions were rooted strongly in the functional theory of counterfactual thought (Epstude & Roese, 2008). I anticipated that higher perceived self-efficacy would be related to greater cognitive appraisals of opportunities to meet ongoing goals. I thought that recognizing one's ability to meet ongoing goals would be associated with an increase in cognitive regret, per the future opportunity principle of regret (Roese & Summerville, 2005). At its core, I expected that high levels of general perceived self-efficacy and cognitive regret would be related to behavioral change, assuming regret is functional in nature (Epstude & Roese, 2008; Roese & Epstude, 2017). However, the present study does not support this supposition. There are a couple

of possible explanations for this outcome. On the one hand, it could be that regret is, in fact, not as functional as was once thought. Researchers Beike, Markman, and Karadogan (2009) already subscribe to this line of thought. Per their lost opportunity principle of regret, regret should be greatest when an individual no longer has the ability to meet an ongoing goal; that is, the opportunity has been lost (Beike, Markman, & Karadogan, 2009). A non-functional basis for regret would also account for the lack of association between low perceived self-efficacy and affective regret. On the other hand, the discrepancy may be time-oriented. As Summerville (2011) maintained in her follow-up study, regret follows the lost opportunity principle immediately following an incident but shifts to the future opportunity principle in the long term. It could be that participants reflected mostly on recent regrets, or things that were still acutely distressing. In this case, it might make sense for cognitive regret to be unrelated to ratings of perceived self-efficacy. A follow up to this study might elucidate this discrepancy by controlling for the recency of the regret.

This study had a few key limitations. One limitation of the present study is its broadness. Participants were tested with regard to general perceived self-efficacy, but it may have been more useful to study one life domain in particular. Perhaps participants had one level of general perceived self-efficacy but felt better or worse about themselves in the domain they selected to reflect on. It is possible that there would be a relationship between a particular life domain and cognitive and affective regret about a related decision, but not on a broader scale. A possible future study might examine the relationship between academic perceived self-efficacy and cognitive and affective regret about an academic choice. Second, the two-minute timed writing task forced some participants to advance to the Regret Elements Scale before they were finished writing about their regret experience. We may have observed different effects by extending the

time of the second task, thus giving participants more time to think deeply about their experiences.

Future research should investigate a causal relationship between perceived self-efficacy and the experience of regret. One route might be to modify the existing study into an experimental design. This could be done by manipulating individuals' levels of general perceived self-efficacy via positive or negative bogus feedback following a series of tasks. A second option would be to design an experiment that tests the impact of manipulating domain-specific perceived self-efficacy on regret, again via bogus feedback. In addition, the dependent value of the experience of regret could be operationalized differently in future studies. Rather than looking at regret intensity, future work could ask participants how much personal control they felt about their regret more directly.

Although the jury is still out on the functionality of cognitive and affective regret, there are a few main takeaways from this study. First, this study reemphasizes the need for additional research on the conditions contributing to the functionality of regret. Summerville (2011) has already suggested that the timing after an incident affects how we experience regret, but there may be other factors still awaiting discovery. Regardless of regret, we know that perceived self-efficacy impacts quality of life by several mechanisms (Bandura, 1994). Greater perceived self-efficacy is associated with lower levels of depression, anxiety, rumination, and negative affect in general (Bandura, 1994). If only there was a way to increase perceived self-efficacy, we could manipulate our very perceptions of the world. As luck would have it, there are ways to increase perceived self-efficacy. Like any skill, perceived self-efficacy is mastered through practice (Bandura, 2000). Every time we succeed in a task, we gain confidence in our own abilities (Bandura, 2000). In tangent with other types of positive feedback, we can make significant

improvements to our baseline perceptions of self-efficacy. If we can manipulate people's levels of perceived self-efficacy in future research, we may be able to spur people towards a more functional experience of regret. In this way, individuals would be empowered to face the consequences of their actions constructively, rather than sticking their heads in the proverbial sand.

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Figure 1

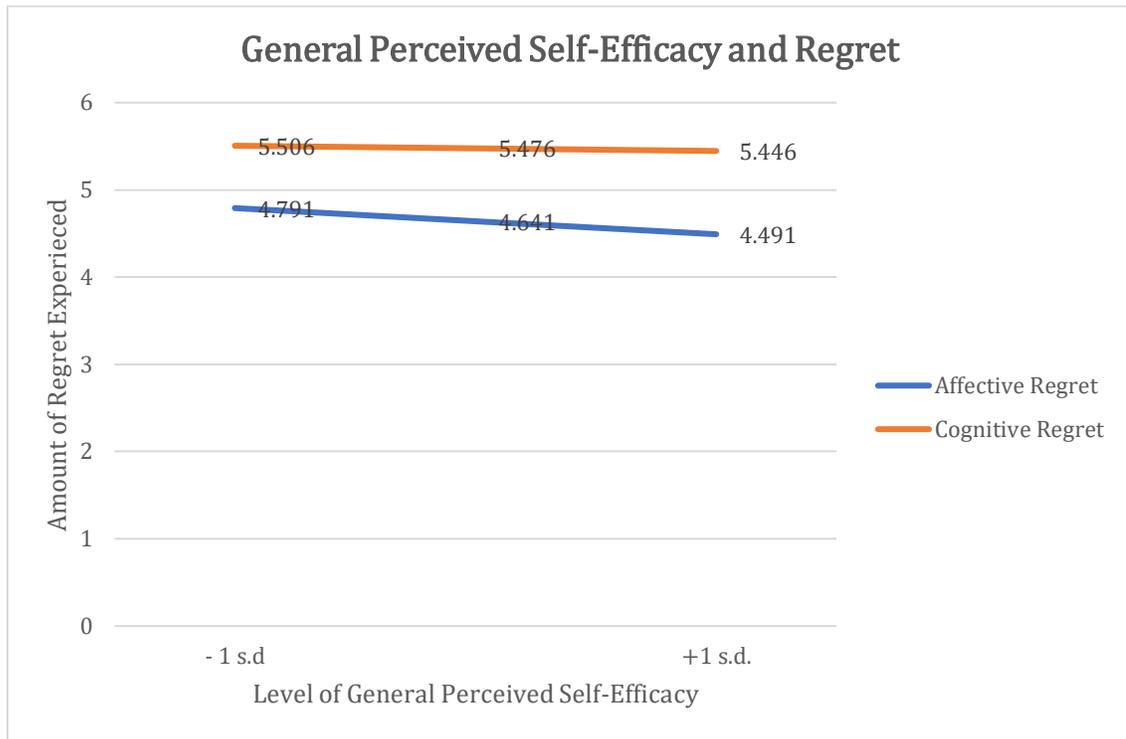


Figure 1. Simple linear regression of the relationship between perceived self-efficacy and cognitive and affective regret.

Appendix A



AS PREDICTED CONFIDENTIAL - FOR PEER-REVIEW ONLY

GPSE and experience of regret- Fall 2018 (#13620)

Created: 08/28/2018 02:10 PM (PT)

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1) Have any data been collected for this study already?

No, no data have been collected for this study yet.

2) What's the main question being asked or hypothesis being tested in this study?

People with higher perceived self-efficacy will experience more cognitive regret. People with less perceived self-efficacy will experience more affective regret.

3) Describe the key dependent variable(s) specifying how they will be measured.

The dependent variables are levels of cognitive and affective regret. They will be measured using the Regret Elements Scale (Buchanan, Summerville, Lehmann & Reb, 2016).

4) How many and which conditions will participants be assigned to?

There is one condition. Participants will be asked to rate their perceived self-efficacy before writing about a time they experienced a regret. Afterwards, they will complete the Regret Elements Scale, which measures both cognitive and affective regret.

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.

I will perform a simple linear regression on the relationship between perceived self-efficacy and type of regret experienced. Additionally, a multilevel regression will be used to determine if the effect of self-efficacy on regret differs significantly for affective versus cognitive regret.

6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.

I will exclude non-native English speakers, because evidence shows that individuals experience emotions less strongly in a second language (Conrad, Recio, & Jacobs, 2011).

7) How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined.

Data will be collected from lab sessions using a participant pool. Sessions will be scheduled until at least 150 people have signed up.

8) Anything else you would like to pre-register? (e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)

Nothing else to pre-register.