

Self-regulation and Regulatory Focus Theory: Regulation in Response to Goal Discrepancy
Feedback in a Regulatory Focus Framework

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Abstract

Regulatory focus theory is a motivational orientation theory encompassing two regulatory systems: promotion focus and prevention focus. Promotion focused individuals tend to seek success, implement risky tactics, and an eager goal pursuit. Prevention focused individuals tend to avoid failure, implement conservative tactics, and a vigilant goal pursuit. Scholer and Higgins (2011) propose an exception to the rule where individuals break the natural RF alignment, which individuals typically seek to maintain. Scholer and Higgins (2011) proposed that promotion (prevention) focused individuals in a state of gain (loss) become conservative (riskier) in their behavior while maintaining an eager (vigilant) goal pursuit. However, literature supporting this theory is between-subjects in methodology and does not measure GP strategy, only risk.

The current study proposes two competing regulation patterns: 1) When individuals change in their risk, they maintain their GP strategy 2) when individuals change in their risk, their GP strategy also changes, becoming more eager with higher levels of risk and more vigilant with more conservative behavior. Therefore, the following study examined how tactics and GP strategies change within-person when experiencing loss and gain states. Specifically, examining change in risk and GP after positive and negative goal discrepancy feedback. In order to examine this self-regulation, participants who were primed to be in either a promotion or prevention focused state played three rounds of a simple risk-measuring game. Even though the RF prime did not produce the expected results, there was regulation occurring. After recategorizing the

baseline risk and GP to create a high risk /eager GP and a low risk /vigilant GP groups, there was support for the idea that as behavior changes to be riskier, so too does GP change to become more eager. This finding is in contradiction to Scholer and Higgins' (2011) theory that there is a cognitive reappraisal of what it means to be risky, such that it can fit within the vigilant goal pursuit strategy. Additionally, latent profile analyses further supported the second of the competing regulation patterns, in that higher risk-taking corresponded with eager GP, and more conservative behaviors led to greater levels of vigilant GP. Future directions and limitations are discussed.

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General Audience Abstract

Regulatory focus theory has two motivational orientations: promotion focus encompassing those who seek success and avoid the absence of success and prevention focus encompassing those who avoid failure and seek the absence of failure. Scholer and Higgins (2011) describe a level approach to regulatory focus where individuals typically seek alignment throughout these levels. However, they note an exception to the rule where individuals implement tactics incongruent with their current regulatory focus system. They propose that individuals maintain this incongruity by cognitively redefining the tactics to align with the current regulatory focus system. Drawing from this exception to the rule, and from Lord et al.'s (2010) self-regulation model, two competing self-regulation patterns were examined: 1) When individuals change in their risk behaviors, they maintain their current regulatory focus system 2) when individuals change in their risk behaviors, it causes bottom-up self-regulation and changes individuals' regulatory focus system to match the risk behavior.

In order to test these competing regulation patterns, participants completed a writing task meant to place them in either a promotion or prevention regulatory focus state. They then played three rounds of a simple risk-measuring game. In addition, after each round of the game, the participants' goal pursuit strategies were measured to see if the general strategy changed as risk behaviors changed. In order to necessitate a change in in levels of risk, between rounds, participants were given negative and positive feedback (in a random order). Negative feedback

was meant to cause individuals to be risky and positive feedback was meant to lead to more conservative behaviors from the participants. Results indicated the regulatory focus prime did not work, however, after examining exploratory analyses, there was some support for the idea that individuals implement self-regulation in order for their regulatory focus system to match their behaviors.

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List of Abbreviations

BRET: The “Bomb” Risk Elicitation Task

GP: Goal pursuit

GPSS: Goal pursuit strategies scale

LPA: Latent profile analysis

RF: Regulatory focus

RFQ: Regulatory focus questionnaire

RFT: Regulatory focus theory

Self-regulation and Regulatory Focus Theory

Regulatory focus theory (RFT) is a motivational orientation theory rooted in the hedonic principle of seeking pleasure and avoiding pain (Higgins, 1997; 2002). Specifically, RFT encompasses two orientations: Promotion focus and prevention focus (Higgins, 1997; 2002). Promotion-focused individuals seek success and avoid the absence of success, while prevention-focused individuals seek the absence of failure and avoid the presence of failure. In both cases, promotion and prevention individuals want to achieve their goal, but their goals are framed differently (i.e., as seeking success or the absence of failure; Cesario, Grant, & Higgins, 2004; Higgins, 2002). Additionally, in both orientations, there is the possibility for success (i.e., presence of success or absence of failure) and a possibility for failure (absence of success or presence of failure; Brazy & Shah, 2006).

According to RFT, promotion and prevention focus are orthogonal constructs; support for this orthogonality is found in recent research that shows the biological approach and avoidance systems (behavioral activation/inhibition systems) operate simultaneously (Corr & McNaughton, 2012). An additional element of RFT is the capability for promotion or prevention focus systems to be primed through the situation/environment (Higgins et al., 2003). This ability to self-regulate the approach-avoidance biological systems in the face of an environmental press is what makes regulatory focus a chronic preference rather than a dispositional trait. Researchers have developed and used specific tasks to prime individuals to operate under a promotion or prevention focus (Cesario et al., 2004; Cesario, Higgins, Scholer, 2008). If an individual's chronic preference is prevention-focused and that individual is primed to be promotion-focused, the prevention tendencies and preferences dim as promotion focus tendencies move to the foreground. Researchers have shown that observed effects when priming RF are comparable to

observed effects when RF is measured as a chronic preference (Forster, Higgins, & Idson, 1998; Freitas, Liberman, Salovey, & Higgins, 2002).

There are many differences between individuals who are operating under a promotion or prevention focus. Promotion-focused individuals seek to achieve their ideal self (Lockwood, Jordan, & Kunda, 2002), strive to achieve hopes, wishes, and aspirations (Shah, Higgins, Friedman, 1998), and are risk acceptant (Bryant & Dunford, 2008; Kuhberger & Wiener, 2012; Zou, Scholer, Higgins, 2014). Prevention-focused individuals avoid the presence of negative outcomes and seek the absence of negative outcomes (Cesario et al., 2004; Higgins, 2002), strive to fulfill oughts, duties, and obligations (Shah et al., 1998), and are risk-averse (Bryant & Dunford, 2008; Kuhberger & Wiener, 2012; Zou, Scholer, Higgins, 2014). For example, Gino and Margolis (2011) found, over four studies, that promotion-focused individuals tended to display more unethical behavior than prevention-focused individuals due to higher levels of risk acceptance. Regulatory focus is but one aspect of regulatory focus theory. Scholer and Higgins (2011) include the motivational orientation of regulatory focus as but one level in a three-level motivational system.

Levels in Regulatory Focus Theory

The three levels of regulatory focus are the system, strategic, and tactical levels (Scholer & Higgins, 2011). The system level is the motivational orientation toward the overarching goal an individual is pursuing. The individual's chronic/situational motivational orientation (,i.e., promotion or prevention focus) is how the individual frames and thinks about the goal. A promotion-focused individual frames goals in terms of accomplishments/achievements while a prevention-focused individual frames goals in terms of safety/duty. For example, an individual's overarching goal may be to be a good student. A promotion-focused student may frame this goal

as succeeding in being a good student, and a prevention-focused person may frame the goal as not failing or maintaining the status of a good student.

The second, strategic level, is the type of goal pursuit strategy implemented: eager or vigilant. Goal pursuit strategies are more specific than the promotion/prevention framing of the overarching goal. Eager goal pursuit strategies are characterized as moving towards the goal, while vigilant strategies involve moving away from failing the goal. For example, the promotion framed goal of succeeding in being a good student may lead an individual to have an eager goal pursuit strategy of seeking opportunities to excel. On the other hand, a prevention framed goal of “not failing to be a good student” may lead to a vigilant goal pursuit of monitoring ways in which he/she may be vulnerable to failure.

In the absence of an external press or internal conflicts about goal preferences, individuals will automatically implement goal pursuit strategies that align with their system-level, chronic, or primed regulatory focus (Scholer & Higgins, 2011). This alignment creates a state referred to as regulatory fit (Higgins, 2002; Lee & Aaker, 2004). With an eager goal pursuit strategy creating fit with promotion focus and a vigilant goal pursuit strategy creating fit with prevention focus (Higgins, 2002; Motyka et al., 2014). A regulatory fit state is described as smoothness of regulation, where the individual “feels right” about his or her circumstances and actions (Sassenberg, Jonas, Shah & Brazy, 2007). Individuals typically seek to maintain fit and avoid disruptions of the fit state.

Finally, the tactic level, as described by Scholer and Higgins (2011), involves more specific avenues for reaching a goal. At this level, there are many different tactics, some of which may be beneficial for eager goal pursuits, some for vigilant goal pursuits, and some for both. An example of a vigilant tactic might be proofreading an essay multiple times while an

example of an eager tactic might be adding in additional citations past the requirements into the essay.

It is at this proximal, tactic level where the argument of the natural alignment of regulatory fit becomes less clear. First, a given tactic may not align with either goal pursuit strategy, i.e., the tactic is a viable option for individuals in either regulatory fit state. Second, individuals may implement tactics typically used for eager (vigilant) goal pursuit strategies when operating under the opposite, a(n) vigilant (eager) goal pursuit strategy. Scholer and Higgins (2011) describe this use of a non-fit tactic occurring when tactical choices that achieve the desired goal are constrained by context. According to Scholer and Higgins (2011), this choice of an incongruent tactic does not necessarily put the individual in a state of prevention (promotion) non-fit, nor does it prime the individual to be in a promotion (prevention) focused state. Instead, the individual cognitively re-frames the non-fit tactic as what is needed to remain vigilant (eager).

For example, a risk-averse tactic is typically associated with vigilant goal pursuits, however, when there is a large negative goal discrepancy, prevention-focused individuals will use a high-risk tactic because it is the only way to prevent failure to achieve the goal, i.e., the risky tactic is no longer associated with gain but instead preventing loss (Scholer & Higgins, 2011). These arguments about the equivocal nature of fit at the tactic level is an “escape clause” for regulatory fit theory. What RFT researchers have failed to address are the boundary conditions that trigger where tactics counter the fit state but do not disrupt fit, and how individuals self-regulate within-person when faced with conditions that interfere with regulatory fit.

There is substantial empirical support through prospect theory for the outcome of individuals choosing risky strategies in circumstances of gains and avoiding risky strategies in circumstances of loss (Levy, 1992; Jervis, 2004; Kahneman, 2011; Kahneman & Tversky, 1979). Although prospect theory provides support for the idea that individuals will be compelled to implement certain tactics incongruent with their regulatory focus system, prospect theory research tends to focus on static situations. The empirical support for this incongruity in a RF framework, such that prevention-focused individuals will use a risky tactic when in a loss situation (Scholer, Zou, Fujita, Stroessner, & Higgins, 2010; Scholer, Stroessner, & Higgins, 2008) and that promotion-focused individuals will demonstrate risk-aversion when in a gain situation (Zou, Scholer, & Higgins, 2014) also lack an examination of within-person change. The levels of RFT highlights a process where individuals self-regulate and change, however, empirical investigations have not tested this described process.

A Need for a Within-Person Approach

RFT theory, like prospect theory, only examines what individuals will do under loss/gain contexts but do not examine *changes* in behavior resulting from that loss/gain situation. Scholer and Higgins (2011) describe an exception to natural alignment within RFT such that individuals can regulate their tactics to be misaligned with their RFT system, yet not disrupt said system. However, empirical investigations of this regulation have not been empirically tested with the ability to support the that regulation is isolated at the tactic level. Therefore, it is possible that this regulation actually occurs throughout the entire RF system. To better understand the possibilities of this regulation process, it is helpful to overlay RFT with existing self-regulation--goal discrepancy literature which focuses on motivational processes from a more idiographic perspective, i.e., within-person.

Goal Discrepancies and RFT

Goal pursuit has a strong foundation in the literature. Many theories are rooted in processes from a within-person perspective and include regulation as a result of goal progress feedback (e.g., Cybernetic control theory, Carver & Scheier, 1982). A common theme across these self-regulation theories is the incorporation of feedback in the form of goal discrepancy (e.g., control theory; Kanfer 1990; Gregory, Beck, & Carr, 2011), typically discussed as a negative feedback loop. For example, having a “D” average in a course midway through a semester is a negative goal discrepancy feedback for a student whose goal is to be a good student. This discrepancy information is central to self-perceptions and affects future goal pursuits (Lord & Levy, 1994). Integrating self-regulation theories that focus on proximal antecedents, such as control theory and goal theory, with RFT sheds light on how regulation occurs during the goal pursuit process in the context of RFT.

Lord, Diefendorff, Schmidt, and Hall (2010) describe a general model of self-regulation, which includes elements from control theory and goal-setting theory. In this theory, individuals set goals, attend to feedback regarding progress towards goals, and change behavior/cognitions based on the goal progress feedback. As with RFT, Lord et al. (2010) describe goal pursuit processes in terms of levels; however, Lord et al., connect each level with a feedback loop. There are four levels: “High,” “intermediate,” “low,” and “micro.” The high level is the most distal goal, the intermediate level includes task goals, the low-level are goal-directed behaviors, and finally, the micro-level are the behavioral components of the goal-directed behaviors.

Additionally, Lord et al. (2010) theorize how long individuals will take to incorporate feedback into the overall goal attainment process for each level. Specifically, with the broader levels taking the longest to gather and incorporate feedback. For example, an individual

receiving negative feedback about his or her overall goal will take longer to incorporate that feedback than if he/she received feedback regarding his/her goal-directed behaviors.

It is important to recognize that RFT theory addresses motivational orientation toward a goal, whereas self-regulation theory addresses goal establishment and goal revision. Nonetheless, there is a parallel between the two systems as a function of levels. At the high level of Lord et al.'s model, an individual's chronic regulatory focus will typically frame broad, overarching goals. Although the overarching goal likely remains relatively stable, chronic motivational orientation toward the goal may be temporarily overridden by the environmental press. For example, consider an individual operating in the promotion focus system whose overarching goal is to be a good student. This individual's goal to be a good student will likely remain stable over the semester; however, his/her chronic motivational orientation may be situationally suppressed in the face of an environmental press producing a temporary prevention-focused state. For instance, if an individual were faced with contemplating his/her duties and obligations before attempting a homework assignment, he or she may be temporarily primed to operate under the prevention regulatory focus system.

At the intermediate level, action goals are framed strategically as either eager, moving towards one's goal, or vigilant, moving away from failing one's goal. The low level of the goal hierarchy corresponds with the RFT tactic level and reflect specific behaviors needed to achieve action goals being pursued in either a vigilant or eager manner, recognizing that tactics may serve both goal pursuit strategies equally well and that what is typically seen as eager/vigilant tactics may temporarily serve vigilant/eager goal pursuits.

Scholer and Higgins (2011) describe individuals' capability for regulation within the tactic level. Where individuals cognitively redefine an eager (vigilant) tactic in order to keep the

prevention (promotion) regulatory focus system intact. This isolated regulation within the tactic level is the exception rather than the rule. In a typical RFT situation, an individual is either faced with situations that align with their RF causing a state of fit, do not align with their current RF system causing a state of non-fit, or cause a shift in the RF system through an environmental press. What Scholer and Higgins (2011) describe does not fall into any one of those categories and instead describes a situation where the RF system was disrupted, yet the individual remains in the same RF system and in a state of regulatory fit. This idea is congruent with Lord et al.'s (2010) discussion of level-specific feedback loops where information is incorporated back into the level-specific goal for alteration. For example, an individual using a risk-averse tactic, under a vigilant goal pursuit, may receive the goal discrepancy feedback of a large loss and then use that feedback to change the tactic level goal to risk-seeking while redefining the behavior as the only way to prevent loss. The redefining allows for the individual to remain in vigilant goal pursuit, maintaining the prevention regulatory focus system.

However, Lord et al.'s (2010) general model of self-regulation supports the possibility for this RF exception to not exist. Lord et al. (2010) acknowledge the possibility for lower levels to affect higher-level goals. Specifically, the low level of regulation may be influenced by the intermediate level or by the environment; similarly, the intermediate level may be influenced by the high level or the low level. In the context of RFT, this would indicate the possibility for the new tactic, implemented as a result of the feedback loop within the tactic level, to influence the strategic level (eager/vigilant GP), consequently initiating a bottom up regulation whereby the entire RF system switches. Although Scholar and Higgins (2011) theorize that under certain situations regulation at the tactic level does not initiate a chain reaction affecting the entire system, the research examining this regulation does not do so from a within-person perspective.

In order to truly examine whether regulation can occur isolated within the tactic level and not cause a bottom-up shift in the regulatory system, a within-person examination is needed.

Competing Regulation Patterns

Taking both Lord et al. (2010) and Scholer and Higgins' (2011) theories on goal pursuit and regulation during such processes, there are two different possibilities for how this regulation occurs, both of which will start in the tactic level and will occur in a matter of seconds. The first option corresponds to Scholer and Higgins' (2011) idea that individuals cognitively reframe behavior to fit a current goal pursuit strategy such that the original RF system remains intact. This first option is supported by Lord et al.'s (2010) self-regulation theory in that each level has a unique feedback loop. The second possibility is that this cognitive reframing does not occur, and instead, when regulation starts at the tactic level, it causes bottom-up self-regulation where the regulatory focus system is disrupted at all levels. This second option is supported by Lord et al.'s (2011) description of the capability for lower goal levels to influence higher goal levels.

The Proposed Study

The current study examines how regulation occurs during the goal pursuit process in an RF framework. The current study will examine which of two regulation patterns occur during self-regulation in terms of RFT: 1) The regulation occurs at the tactic level where, after goal discrepancy feedback, a specific tactic is needed. If this tactic is incongruent with the individuals current regulatory focus system then that tactic is cognitively re-framed to fit within the individual's current goal-pursuit strategy at the strategic level or 2) the regulation starts at the tactic level after goal discrepancy feedback such that the positive/negative goal discrepancy feedback leads to a need for a specific tactic. Then this tactic, if incongruent with the individual's

current regulatory focus system, will initiate bottom-up regulation where the strategic and the system level are regulated to align with the environmentally needed tactic.

Literature Review

Regulatory Focus and Risk Preference

It has been well established in the literature that individuals with a chronic promotion focus will be more risk-seeking than those with a chronic prevention focus (Bryant & Dunford, 2008; Hamstra, Bolderdijk, & Veldstra., 2011; Crowe & Higgins, 1997). For example, Burmeister-Lamp, Levesque, & Schade (2012) examined risk decision making in terms of time allocation for enterprises wherein more time allocated by participants indicated a higher level of risk. They found that chronic regulatory focus mattered in time allocation only when risk was tied to the number of hours assigned such that promotion focus individuals allocated more hours than prevention-focused individuals.

Ewe, Gul, Choi, and Yang (2018) also demonstrated a connection between regulatory focus and risk preference, but unlike Burmeister-Lamp et al. (2012), they examined primed regulatory focus. The researchers examined risk tendencies in an investment context. They found that those participants who were primed to be in a promotion-focused state chose to invest in the riskier option of individual stock while the prevention-focused state participants were more favorable of the fixed conservative deposit option. Both of these examinations of risk preferences connected to regulatory focus demonstrate that primed and chronic RF lead to the same risk preferences.

Hamstra et al. (2011), over two studies, examined RF risk preferences in more naturalistic settings. In the first study, participants speeding behavior was recorded over two months. Through GPS devices, the researchers were able to examine how often and to what extent participants violated the speed limit, where it was assumed that more speed violations were an indication of a higher risk-preference. As they expected, chronic promotion focus

positively predicted speeding violations while prevention focus negatively predicted speeding violations.

In a follow-up study, Hamstra et al. (2011) implemented a gap acceptance task where participants underwent a driving simulation. In this simulation, participants would need to decide the timing of a left turn when the oncoming traffic has the right of way. The simulation was set up such that the participants would run into a differing length of time for the gaps between the cars in the oncoming traffic. The researchers connected the lower average accepted gap time to turn as an indicator of more acceptance of risk. In line with the first study, the researchers found that having a chronic promotion-focused preference predicted a negative relationship to gap time, while a chronic prevention focus predicted a positive relationship with gap time, further supporting promotion focus' connection to risk-taking and prevention focus' connection to risk aversion. There is clear support for a connection with promotion focus and risk acceptance and prevention focus and risk-aversion, and this connection had been established for chronic preference RF, primed RF, within lab settings, and in more naturalistic settings.

This established risk preference between promotion and prevention individuals manifests at the tactic level such that promotion-focused individuals under eager goal pursuit will tend to use risky tactics while prevention-focused individuals under vigilant goal pursuit will tend to use more conservative tactics. However, as previously discussed, when there is a disruption to the environment, there is a possibility for those under a vigilant goal pursuit to use a risky tactic and those under an eager goal pursuit to use a conservative tactic (Higgins et al., 2010). This regulation within the regulatory focus framework is best understood when examining the three levels of regulatory focus: system, strategic, and tactic.

Levels of Regulatory Focus

The levels of regulatory focus, as described by Scholer and Higgins (2011), indicate that it is possible for regulation to occur at the tactic level such that individuals may cognitively redefine behavior to remain operating under the same goal pursuit strategy. In this case, the needed regulation does not disrupt the current regulatory focus system. There have been empirical examinations of this tactic level (e.g., Scholer, Stroessner, & Higgins, 2008). Scholer et al. (2008), over six studies, examined under what circumstances a prevention-focused individual would implement risk strategies. Each of the studies have a similar methodology. Over the six studies, the regulatory focus was manipulated so that participants were either in a promotion or prevention state. Additionally, in all of the studies, participants participated in a signal detection recognition memory paradigm task, which either used neutral, positive, or negative words. The methodology varied across the six studies such that the valence was either manipulated between or within participants.

The general hypotheses were that prevention-focused individuals would have a conservative bias when exposed to neutral stimuli but would then have a riskier bias when exposed to negative stimuli. Additionally, the researchers predicted that the risky bias with negative stimuli would be greater for those who were prevention-focused than promotion-focused. This conservative or risky bias was determined by how often they would falsely signal a word as being shown before that was risky or not risky. Their analysis included all six studies (including the within and between subjects studies) at once using a generalized estimating equations model.

Overall, the researchers found support for their hypotheses that when exposed to negative stimuli, participants had a riskier bias than when shown positive words, and, in this circumstance, prevention-focused individuals tended to be riskier than promotion-focused

individuals. This study was able to show that under some circumstances, individuals in a state of prevention focus can demonstrate a risk preference instead of being risk-averse. Furthermore, this study claimed that because prevention-focused individuals were riskier than promotion-focused individuals in a loss situation, being risky becomes a prevention focus tactic. However, these experiments did not examine if a promotion-focused individual can exhibit risk-aversion, nor did these experiments examine this phenomenon in the context of self-regulation after a positive or negative goal discrepancy.

Scholer, Zou, Fujita, Stroessner, and Higgins (2010) also examined prevention-focused individuals' tendency to display either risky or cautious behavior, depending on the situation. Over four studies, Scholer et al. (2010) demonstrate that there are three conditions needed for an individual to be risk-seeking: 1) the individual needs to be experiencing loss 2) the individual needs to be in a prevention-focused state 3) taking a risk is the only way to prevent further loss. Specifically, the researchers examine that prevention-focused individuals will be risk-seeking after loss and that promotion-focused individuals will not be as risk-seeking after a loss. Scholer et al. (2010) used a similar methodology across all of the studies.

Using the regulatory focus strength instrument, the researchers first measured the participants' chronic preference, and then the participants were told that they had earned \$5 and that they could "either terminate the study or invest their \$5 in a second, stock-investment study" (pp. 219). Additionally, participants were given information leading them to believe individuals typically gained \$2, but they could lose the \$5 as well. Participants were given feedback (varying in type across studies) on their stock investment and then asked to invest again. This second investment was the authors' dependent measure and their operational definition of risk. There was no comparison to the participant's original investment.

In study one, after receiving loss feedback, prevention-focused individuals chose the riskier stock option. Study two examined risk preferences after feedback indicating a loss or gain in stocks. The designs were between-subjects. Over both studies, the researchers found that prevention-focused individuals were more risk-seeking under loss than gain. Furthermore, promotion-focused individuals did not display risk-seeking behavior under loss. Additionally, the researchers found that promotion focus did not predict risk preference in either the gain or the loss conditions.

Finally, study three sought to show that the risk preferences increased with prevention-strength due to a want to eliminate the loss. To do this, Scholer et al. (2010) altered the conservative stock option to have the potential of a large enough gain to make up for the initial loss. In this way, participants would not have to choose the risky option to make up the amount that they initially lost. Additionally, in this study, researchers manipulated RF instead of measuring it, and again, it was a between-subjects design. As the researchers predicted, they found that participants primed to be prevention-focused choose the riskier option more often if it was the only way to make up for the previous loss than if a more conservative option could also make up for this loss.

These studies demonstrated individuals operating under a prevention focus exhibit risk preference in a loss situation when greater risk is the only option to prevent loss. However, these studies were all between-subjects. Considering the concepts dealt with are a self-regulation matter, it is essential not to compare individuals in these situations but to examine change within the individual. It is possible that no effects were found for promotion focus and risk preference in a gain versus loss situation because of the between-subjects nature of the experiments.

Zou, Scholer, and Higgins (2014) sought to address the lack of evidence to support promotion-focused individuals regulating under loss/gain situations at the tactic level. Specifically, they examined risky/conservative choices under gain situations for both prevention and promotion-focused individuals over four studies. Throughout the experiments, the researchers either manipulated or measured regulatory focus and performance progress. The researcher's overall predictions were that risk preferences under a gain situation would be determined by regulatory focus and perceptions of progress such that when perceived progress is high promotion-focused individuals should choose the conservative option, and when perceived progress is low, they would choose a risky option. Additionally, they note that prevention-focused individuals would not be riskier in the low option because they are focused on maintaining zero rather than gaining more than that. In study one, chronic preference for regulatory focus was measured while the regulatory focus was manipulated in the other three studies. Over the four studies, the researchers found that promotion-focused individuals were risk-averse after a large gain.

Taking both Zou et al. (2014) and Scholer et al. (2010) findings, there is clear support for promotion-focused individuals to be risk-averse after receiving positive goal discrepancy feedback and for prevention-focused individuals to be risk-seeking after receiving negative goal discrepancy feedback. In order to better understand *how* this self-regulation occurs it is important to draw from established self-regulation and goal discrepancy literature.

Self-regulation and Goal Discrepancies

Lord et al.'s. (2010) General Model of Self-regulation introduces process-oriented theory and empirically tested ideas, which, when overlaid with RFT, better explains how regulation occurs after goal discrepancy feedback. There are two key elements of Lord et al.'s (2010) self-

regulation theory, which helps to support the current studies process-oriented approach to examining self-regulation after goal discrepancies in an RFT context. These two elements are feedback loops and goal hierarchies.

Feedback Loops

A significant component in Lord et al. (2010) self-regulation theory is feedback loops. Feedback loops are the process of individuals receiving feedback, typically in the form of goal discrepancies, during progression to their goal and then incorporating that feedback back into their goal. Lord et al. (2010) suggest a differing timeline for how long a feedback loop takes to occur, depending on the level to which the goal is set. For example, the broader high level having a feedback loop of months and the intermediate level as having a feedback loop of minutes.

This idea of a feedback loop has been a long-standing concept, most often attributed to control theory (Carver & Scheier, 1982; Vancouver & Putka, 2000), where feedback is directly connected to goal discrepancies. A goal discrepancy perception is created by comparing an individual's progress to a reference point (i.e., goal). The experience of goal discrepancy is considered to be the motivating force to reduce the discrepancy (Carver & Scheier, 1982; Kafner, 1990) and thus is the initiator of that feedback loop. In the context of RFT, Scholer and Higgins (2011) would support the idea that goal discrepancy initiates a feedback loop within the tactic level such that the tactic needed is changed (e.g., a risk to conservative tactic).

Hierarchical Goal Structure

Lord et al. (2010) describe self-regulation within and across varying levels of goals, which are hierarchical, going from broad overarching goals to specific elements of behaviors.

The idea that goals are hierarchical in general is again a common argument in the literature (E.g., Unsworth, Yeo, & Beck, 2014 and Jung, Pawlowski, & Kim, 2017).

Additionally, Lord et al. (2010) discuss the possibility for goals to affect one another in a bottom-up manner in addition to the broader goals providing direction to the more specific goals. In support of this idea, Shah and Kruglanski (2003) examined bottom-up goal activation. In their research, they examined priming of goal strategies leading to a focus on the goal that the strategy would progress. In their first study, Shah and Kruglanski (2003) used a lexical decision task to see if priming means to complete their goal would increase their activation speed of an overall goal (e.g., studying connected to educated). Their results did indicate that priming means to achieve goals did increase activation of the overall goals.

The second and third studies involved participants doing an anagram task. In the second study, participants were given a strategy (means) to complete the task and were then subliminally flashed these “means” during what the participants thought was a practice run of the task. These participants were compared to the participants who were not flashed the means of the ability to solve the anagram. The researchers found that those primed with the means were more sensitive to their goal. For the third study, the participants still did an anagram task, but they were told that certain anagrams (color-coded green) would be worth more and would target verbal ability specifically, making the green color anagrams “means” for achieving their goal. Then participants were told they would do practice anagrams and were subliminally primed with either the green color or a red color connected to anagrams not connected to verbal fluency. It was expected and found that those primed with green did have increased accessibility to their goal.

In their final study, Shah and Kruglanski (2003) examined a different type of goal accessibility, where participants did the same task as in study three, but participants were told

that there would also be a second portion of the study. Specifically, they were told that they would need to think of as many uses as they could for a specific object. They were told that if they were given an object with a green label, it was particularly characteristic of a certain type of functioning and would be worth more points than a red label. Then during the anagram task, they were subliminally flashed either green or red. It was expected and found that those who were flashed green would be more distracted by the thought of the future object-use task than those who were flashed red.

From this self-regulation literature, it is clear that within goal hierarchies regulation after goal discrepancy can occur within a level in the form of a feedback loop as well as between levels, whether that be bottom-up or top-down. When considering these ideas in conjunction with regulatory focus, it is clear that there are two distinct possibilities for how individuals regulate after goal discrepancy feedback. 1) The regulation is isolated to the tactic level, where a feedback loop redefines the purpose to which the tactic is serving. Here the regulatory focus system is not disrupted; the goal pursuit strategy and regulatory focus do not change. 2) The regulation starts at the tactic level causing the feedback loop but then leads to an upwards prime where there is a shift in the regulatory focus system. Here the regulation would occur throughout the entire system in a bottom-up manner such that the goal pursuit strategy and regulatory focus would switch. For both of these options, the tactic used remains the same for both types of goal discrepancy feedback such that a risky tactic is implemented in a negative goal discrepancy situation, and a conservative tactic is used in a positive goal discrepancy situation.

Study Overview

The current study seeks to examine self-regulation after goal feedback in the context of regulatory focus. Specifically, the purpose of the current study is to examine if 1) after a large

enough goal discrepancy, self-regulation occurs only at the tactic level of regulatory focus such that behaviors are cognitively reframed to match the individuals' current goal pursuit strategy or 2) a large enough goal discrepancy dictates the need for a certain tactic which in turn primes an entirely new goal pursuit strategy. To test these two competing explanations, participants will play a game designed to measure risk tendencies. Regulatory focus will be manipulated, goal pursuit strategy will be measured, tactics will be measured, and goal discrepancy feedback type will be manipulated in order to determine their effect on change in goal pursuit strategy and level of risky tactic used.

Hypotheses

1. If tactic level behaviors reflect a shift in risk after large goal discrepancies, but GP strategy remains stable, then there is support for feedback discrepancies affecting self-regulation at the tactic level without changing either strategic or system-level regulatory focus
 - a. An individual operating under the promotion focus system will demonstrate more risk-averse tactics after receiving positive goal discrepancy feedback than their baseline, but his/her GP will not change (see figure 2).
 - b. An individual operating under the prevention focus system will demonstrate more risky tactics after receiving negative goal discrepancy feedback than their baseline, but his/her GP will not change (see figure 3).
2. If large feedback discrepancies produce changes of both tactics and GP strategies, then there is support for the more traditional argument that individuals seek to maintain alignment of regulatory focus at all levels.

- a. An individual operating under the promotion focus system will demonstrate more risk-averse tactics after receiving positive goal discrepancy feedback than their baseline, and their preference for eager goal pursuit strategies will be less than their baseline while their preference for vigilant goal pursuit strategies will be greater than their baseline preference (see figure 4).
- b. An individual operating under the prevention focus system will demonstrate more risky tactics after receiving negative goal discrepancy feedback than their baseline, and their preference for vigilant goal pursuit strategies will be less than their baseline, and their preference for eager goal pursuit strategies will be greater than their baseline preference (see figure 5).

Method

Participants

171 psychology undergraduate students at a large southeastern university participated in the study. After data cleaning described in the results section, 139 of these participants were included in analyses. They were all over the age of 18 and were compensated for their participation through extra-credit and the possibility of winning a visa gift card worth \$100. Participants were recruited through an online system called SONA. Participants were mainly white (n=101), female (n=106), and freshman/sophomores (n=84). This breakdown is typical for participants in psychology experiments conducted at the university.

Design

The current study was a 2 (promotion and prevention regulatory focus) X 2 (order of feedback: positive goal discrepancy first and negative goal discrepancy first) X 2 (goal discrepancy sign: positive goal discrepancy, and negative goal discrepancy) repeated measures design with regulatory focus and order of the type of feedback received as between-subjects' factors. Goal discrepancy sign was the within-subjects factor that was manipulated after trial 2 and trial 3. Also, baseline measures of all dependent variables were taken because the hypotheses were stated as relative comparisons to baseline. With alpha at .05, power at .9, and an effect of .3, power analysis for the matched pairs two-tailed t-test was a total sample size of 119.

Procedure

Participants participated online through the Qualtrics survey platform. They participated either on their personal laptop in a lab setting (with anywhere between 1 and 8 participants at a

time) or in a classroom setting (with anywhere from 20-60 participants at a time). Participants were asked by the researcher to keep their eyes on their own screens. The specific study instructions were all given through the Qualtrics platform and not by the researcher.

After following the study link, participants saw the first screen of the study which informed them that they would be playing a game and answering survey questions and that the time to complete the study was 1 hour. Participants read through this online information form, and in the end, they saw an arrow to click only if the participants agreed that they wished to proceed and participate in the study. For ease of explanation, the rest of the procedure is described in phases (see figure 6). *Phase 1*: Participants were primed to be in either a promotion or prevention-focused state. *Phase 2*: Participants read that they would be participating in a game. Next, a description of the game was presented, and an example of play was provided. There were also comprehension checks within this phase. At the end of this phase, the participants were given their goal for the game. They read that if they were in the 75th percentile of final scores that they would be entered in a lottery with the possibility of winning a \$100 visa gift card.

Phase 3: Participants were reminded of their goals. After this, participants went through the game ten times in a row. Participants then took the GP survey. Participants then viewed a screen for a minute, which stated that the computer was calculating their current score. *Phase 4*: This was the same as phase 3, except before playing the game again, the participants received manipulated goal discrepancy feedback. *Phase 5*: This phase was identical to phase 4, except that participants received different manipulated feedback. *Phase 6*: Participants were informed of the deception in that everyone had the same chance to win the gift card and that it did not depend on performance. Then after gaining consent to use their data after the deception, participants

responded to a RF questionnaire, then demographic questions and finally were thanked for their participation.

Experimental Task

The “Bomb” Risk Elicitation Task (BRET)

This task was created by Crosetto and Filippin (2013). Performance on this task measured risk aversion and risk-seeking. In the actual game, participants choose a number of boxes to collect out of 100; there was a bomb in one of the 100 boxes. For every box, the participant collected he/she received one point. However, if there was a bomb in one of the boxes collected, then he/she received no points.

There are many ways to present the BRET task; the current study implemented the static version in which the participants were asked to give the number of boxes they wished to collect upfront instead of choosing them one at a time. This method was done so that the participants could play multiple times in a row without receiving feedback in between rounds. Participants played a total of ten times each round. See appendix A for participant instructions.

Independent Variables

Manipulation of Regulatory Focus

Promotion/prevention-focus was manipulated using a modified task developed by Freitas and Higgins (2002). In the promotion condition, participants were asked to “Please think about hopes or aspirations you currently have. Please list them in the space below.” Participants in the prevention condition were asked to instead think about duties or obligations. Next, participants in the promotion condition were then asked to “please elaborate on one of your hopes or aspirations

and list some strategies you could use to make sure everything goes right and helps you realize your hope or aspiration.” While participants in the prevention condition were asked to “please elaborate on one of your duties or obligations and list some strategies you could use to avoid anything that could go wrong and stop you from realizing your duty or obligation.” Participants were not allowed to progress to the next screen until two minutes had passed.

Order

Before each round of the BRET, all participants were told that their goal will be to end the game with a score that puts them in the 75th percentile of all past performances on the game. Half the subjects received positive goal discrepancy feedback after Trial 1 and negative goal discrepancy feedback after Trial 2; the order of goal discrepancy feedback was reversed for the other half of the participants.

Goal-Discrepancy Sign

All participants were exposed to a positive goal discrepancy (87th percentile) and a negative goal discrepancy feedback (63rd percentile), the order of which was counterbalanced.

Dependent Variables

Risk

The number of boxes collected over the ten collections for each round was the indication of the level of risk the individual was displaying. Specifically, the average number of boxes collected out of 100 for each round was the indicator of risk. There were three rounds and, therefore, three measures of risk.

Goal Pursuit Strategies Scale (GPSS)

This 5-item instrument was created for the context of the game participants played (See Appendix B). This instrument is a bi-polar scale in which participants were asked to indicate which GP strategy was more characteristic for them during the previous round of the game. Each anchor was constructed to relay either an eager or vigilant goal pursuit strategy specific to the game the participants are playing. Additionally, the phrasing refers to each previous round of the game that the participants played: “During the last round of the game....”.

An example item has a vigilant goal pursuit anchor of “I was very focused on not getting a bomb,” and an eager goal pursuit anchor of “I was very focused on getting as many points as possible.” Here we see that the strategy deals with either moving away from failing the goal (vigilant) or moving towards the goal (eager). These phrases were created to capture the essence of vigilant/eager GP within the context of the game played. Eager GP encompasses strategies that move towards succeeding in achieving a goal, it deals with enthusiasm and optimism. Vigilant GP encompasses strategies that move away from failing a goal, it deals with caution and pessimism. Eager GP would involve faster decision making, made with gut feelings while vigilant goal pursuit involves more thought out deliberate reasoning (Cornwell & Higgins, 2016).

Participants were asked to move a slider closer to the phrase which was most characteristic of their previous game experience. The phrases were anchored from 1 to 7. The instrument was coded such that a higher score indicates a higher level of goal pursuit vigilance. For the baseline the reliability was .61 for the second trial the reliability was .73 and for after negative feedback the reliability was .66. For all three reliabilities, Cronbach’s alpha analyses did not indicate there would be improvement after removal of any of the items.

Post-Experiment Measures

Demographics

Age, ethnicity, gender, academic year, and major were asked of participants.

Chronic Regulatory Focus

The Regulatory Focus Questionnaire (RFQ) was used (see appendix C). This measure of chronic RF preference was developed by Higgins et al. (2001). The measure assesses two subscales, promotion and prevention focus. The promotion subscale of the RFQ contains items such as “I feel like I have made progress toward being successful in my life,” while the prevention subscale consists of items such as “How often did you obey rules and regulations that were established by your parents?” All items in the RFQ are scored using a 5-point Likert scale ranging from 1 (never or seldom) to 5 (very often). The reliability for the promotion focus subscale was .67 and for the prevention focus subscale was .79.

Results

Data Quality Checks

To check the quality of the data, the variance of GPSS responses, answers to attention checks, and participants opinion on their quality of data were considered. For GPSS response variance, the variance within each trial was examined. Considering two of the five items were reversed scored, it was expected that participants had at least some variance in their responses before their responses were reverse coded. If an individual showed a variance of .05 or less for any one of the three trials of the GPSS, then that individual was excluded from any future analysis. Additionally, any individual who failed anyone of the three attention checks within the chronic measurements of RF were also excluded from the analysis. Finally, any participants who indicated that they did not provide quality data were excluded from analysis.

Data Cleaning and Participant Exclusion

As previously mentioned, of the 171 participants, 139 were included in the analyses. Two participants were excluded, who reported that they did not provide quality data. One individual left the experiment halfway through and was eliminated. There was a comprehension check of the task, and no one failed this comprehension check. Within person variance for each of the participants for goal pursuit strategies scale was examined. Five participants who had a variance of .05 or less were removed. 16 individuals were removed who did not believe the feedback. Finally, eight participants were removed, who failed one of the three attention checks. 39 participants were in the lab, and 100 were in the classroom. Analyses were also examined by filtering out the 39 participants from the lab. Analyses were not notably different, and therefore for reported analyses, all 139 participants were included.

Normality and Outliers

Using R package MVN Kurtosis and Skewness for all dependent variables were examined. There were no notable concerns with skewness. There was some moderate kurtosis for risk, but it was not enough to transform the data (see figures 7 to 12). After checking outliers using JMP with the robust fit outliers option, only one outlier was identified for risk. However, it was not excluded from analyses.

Descriptive Statistics and Manipulation Check

Correlations, means, and standard deviations were broken down by order, and RF and across order can be found in table 2. Cronbach's alpha for the GPSS at each time point ranged from .6-.75, and t-tests were used to check the efficacy of the regulatory focus manipulation. Unexpectedly, those primed to be promotion-focused showed less risk by collecting fewer boxes ($M=45.5$ $SD=11.4$) than those primed to be prevention focus ($M=50.1$ $SD=13.6$) for the baseline measure of risk ($p=.03$). There was not a significant difference between groups on goal pursuit strategies; however, those primed to be promotion-focused self-reported slightly greater vigilance ($M=4.03$ $SD=1.15$) than those primed to be prevention-focused ($M=3.9$ $SD=1.12$). Given random assignment to the priming condition, there is no obvious explanation for the manipulation failure, especially the reversal of direction for the risk dependent variable. Although the formal hypotheses only concerned across trial comparisons within each regulatory focus group, the purpose of including the regulatory focus prime was to influence baseline risk/goal pursuit strategies to understand better self-regulation across trials. As such, all predictions were based on the assumption that the priming of participants put them in the designated regulatory focus state.

Analysis Strategy

I tested the hypotheses as stated within each regulatory focus group, recognizing the equivocal nature of the interpretation of the findings. However, I supplement these findings with two sets of analyses. First, I use the baseline assessments of risk and goal pursuit orientation to create a “high risk/eager” group and a “low risk/vigilant” group and explore how participants in these groups modify their levels of risk and goal pursuit orientation as a function of feedback. Second, I use Latent Profile Analyses (LPA) to further explore the relationship between risk tactics and goal pursuit strategy after each level of feedback. Considering the nature of the hypotheses, in that they are competing and have an element of predicting null effects, a conservative approach was implemented for all analyses. This means that pattern of results were taken into consideration for order effects. Additionally, analyses erred on the side of caution in regard to sphericity, specifically, the error rate was moved to 0.10. in order to reduce the probability of a Type I error.

Order Effect

To determine whether the order in which feedback was received affected displays of risk and GP strategy orientation, four mixed designs were examined. Within each RF prime, a 2 (order: positive feedback first or negative feedback first) by 3 (feedback: baseline, positive, and negative) mixed ANOVA was examined using SPSS’ repeated measures function.

Promotion Prime

For the promotion primed group analysis Mauchly’s Test of Sphericity was significant ($p = .043$; see table 3) for risk; therefore, the Greenhouse-Geisser test is reported. There was not a main effect for order; however, there was a two-way interaction of feedback and order ($F = 4.11$, $p = .022$, Partial Eta Squared = .06; see figure 13). For goal pursuit strategy, Mauchly’s Test of

Sphericity was not significant ($p=.53$). There was not a main effect for order on GP. The interaction between order and feedback was also not significant ($F= 2.07, p= .13$, Partial Eta Squared = .03, see figure 14). Although not significant, the interaction between feedback and order accounted for six percent of the variance in risk and three percent of the variance in goal pursuit strategy. Given the magnitude of these effects it was decided to analyze those primed to be promotion focus within order.

Prevention Prime

For the prevention primed group, Mauchly's Test of Sphericity was significant for risk ($p = .07$) and for GP ($p= .01$); therefore, Greenhouse-Geisser tests are reported. There was not a significant effect of the order on risk or GP. Additionally, the two-way interaction of feedback and order was also not significant for risk or GP (see figures 15 and 16). These non-significant findings indicate that for the prevention primed group, the order in which participants received the feedback did not differentially affect the way this group responded to the varying levels of goal discrepancy feedback. For the following analyses, the order effect was collapsed over for the prevention-primed group.

Hypothesis testing

The goal of this study was to examine those primed for promotion/prevention focus self-regulation after goal discrepancy feedback. Specifically, two competing hypotheses were proposed for each RF. For promotion-focused primed individuals, it was hypothesized that after a gain (positive goal discrepancy feedback), these individuals would decrease in risky tactics and either maintain their current GP strategy or become more vigilant. For prevention focus primed

individuals, it was hypothesized that after a loss (negative goal discrepancy feedback), they would become riskier and either maintain their previous GP strategy or become more eager.

Therefore, paired t-tests were used to test all hypotheses within both regulatory focus priming conditions. To test all of the predictions, two t-tests were required for each dependent variable. Therefore, a Bonferroni correction was used, resulting in .025 as the Type I error rate. Additionally, because for all hypothesis, levels of risk always had the same predicted self-regulation pattern (increasing after loss and decreasing after gain), one-tailed tests were used. However, predicted self-regulation patterns for GP strategy were not the same across hypotheses (either GP strategies changes to follow the changing tactics or they remain the same), and therefore two-tailed t-tests were used for GP.

Promotion Primed Group

In order to test the hypotheses for those in promotion prime, the baseline risk and GP needed to be compared to risk and GP after positive feedback only. There were no predictions made for promotion primed individuals after negative feedback. However, because the order was shown to interact with feedback for those promotion primed, analyses were done within order. For those who received positive feedback first, promotion primed individuals did not have a significantly different baseline risk levels compared to risk after positive feedback ($t=0.33$, $p=.37$, one-tailed). This finding is contradictory to all hypotheses. Promotion primed individuals also did not have a significant difference between baseline GP and GP after positive feedback ($t=-0.77$, $p=.45$, two-tailed). However, this does not indicate support for hypothesis 1, because risk also did not show a difference between trials.

There was no need to conduct the significance test for risk for promotion primed participants receiving positive feedback second. Ignoring the complicating aspect of risk choices

after negative feedback at trial one, the prediction for risk was one-tailed with risk decreasing after positive feedback. Given risk increased after trial 3, the null hypothesis could not be rejected for promotion-primed participants receiving positive feedback after trial 3. There were no significant differences in GP ($p=.10$). Considering this increase in risk was in contradiction to both of the proposed competing patterns of regulation, the non-significance of the GP strategies does not indicate support for hypothesis one.

Prevention Primed Group

Given, there were no order effects for prevention primed individuals, the order effect was collapsed over in the analyses. In order to examine self-regulation within those who were primed to be prevention focused, baseline risk/GP were compared to risk/GP after negative goal discrepancy feedback. As with promotion focus, risk ($t=-1.25, p=.11$) and GP ($t=0.97, p=.34$, two-tailed) did not significantly differ from baseline risk and GP.

Supplemental Analyses

Reconfiguration of the Between Subjects Factor Using Baseline Scores

Considering the RF prime did not produce the expected pattern of baseline scores, groups were reconfigured based on risk and GP scores at baseline (ignoring the RF prime conditions). Two groups, “high risk/eager” and “low risk/vigilant” were created by doing median splits on both baseline risk, and baseline GP. There are limitations to median splits in that some individuals may be miss-classified; however, it was necessary in order to maintain a total sample size that provided adequate power to detect effects. Forty-four high risk/eager participants fell above the median on baseline risk/GP, and 32 low risk/vigilant participants fell below the median on baseline risk/GP. This new categorization between high risk/eager and low risk/vigilant created from the participants’ baseline risk and GP, means there cannot be comparisons between this manufactured categorization. Instead, the following analyses only examine differences between feedback trials, within-person.

Testing for Order Effects

In order to test for order effects, four repeated measures analyses were examined, one for risk and one for GP for those categorized as high risk/eager as well as for those categorized a low risk / vigilant. Feedback was included as the within-subjects factor and order as the between-subjects factor.

Low Risk / Vigilant Categorization

For risk, Mauchly’s test of sphericity was not significant. There was not a main effect for order of feedback on risk. The interaction between feedback and order was also not significant ($F=2.49, p=.091, \text{Partial eta squared} = .077$; see figure 17). For GP, Mauchly’s test of sphericity

was significant ($p=.052$), and so Greenhouse-Geisser tests are reported. There was a main effect of the order on risk ($F=7.75$, $p=.011$, Partial eta squared = .199). However, the interaction between feedback and order was not significant (see figure 18). Although there was not a significant interaction of order and feedback on risk, the effect size paired with the main effect of order for GP raises concerns for order effecting those in the low risk / vigilant categorization.

High Risk / Eager Categorization

For risk and GP, Mauchly's test of sphericity was not significant. For risk, neither the main effect nor the interaction between feedback and order were significant (see figure 19). For GP the main effect of order ($F=2.85$, $p=.099$, Partial eta squared = .064), and the interaction between feedback and order was not significant (see figure 20). However, due the effect size of the main effect of GP, there is still the concern for the effect of order on GP. In the preceding analyses, only risk contrasts, for those who were categorized as high risk /eager, were examined across the order of feedback received. All other analyses were done within the order.

Within-Person Self-regulation

Low Risk/Vigilant Positive Feedback First

When examining Mauchly's test of sphericity for the one-way repeated measures ANOVA for risk, it was significant ($p=.000$); therefore, Greenhouse-Geisser tests are reported. Feedback was not significant ($F= 3.54$, $p=.067$, Partial eta squared = .172). When examining pairwise comparisons, baseline risk was significantly different from risk after negative feedback ($p=.022$) such that baseline risk ($M=35.8$, $SD=2.68$) was lower than risk after negative feedback ($M=46.36$, $SD=2.68$). All other pairwise contrasts were insignificant.

When examining Mauchly's test of sphericity for the one-way repeated measures ANOVA for GP, it was not significant ($p=.39$). Feedback was significant ($F= 2.74, p=.079$, Partial eta squared = .139). When examining pairwise comparisons, all contrasts were insignificant.

Low Risk/Vigilant Negative Feedback First

When examining Mauchly's test of sphericity for the one-way repeated measures ANOVA for risk, it was significant ($p=.000$); therefore, Greenhouse-Geisser tests are reported. Feedback was significant ($F= 7.10, p=.015$, Partial eta squared = .35). When examining pairwise comparisons, baseline risk was significantly different from risk after negative feedback ($p=.008$) such that baseline risk ($M=36.59, SD=2.26$) was lower than risk after negative feedback ($M=49.28, SD=3.40$). Additionally, baseline risk was also significantly different from risk after positive feedback ($p=.024$) such that again baseline risk ($M=36.59, SD=2.26$) was lower than risk after negative feedback ($M=50.34, SD=4.62$). This finding indicates that those with a low-risk vigilant baseline continuously increased in risk when receiving negative feedback first. All other pairwise contrasts were insignificant.

When examining Mauchly's test of sphericity for the one-way repeated measures ANOVA for GP, it was not significant ($p=.39$). Feedback was significant ($F= 5.98, p=.007$, Partial eta squared = .315). When examining pairwise comparisons, all feedback levels were significant from one another ($p < .05$), with baseline GP having the highest vigilant score ($M=4.96, SD=0.14$), followed by GP after positive feedback ($M=3.96, SD=0.33$), and finally GP after negative feedback ($M=3.76, SD=0.42$). The decrease in vigilant GP from baseline is to be expected after negative feedback but was not expected after positive feedback.

High Risk/Eager Positive Feedback First for GP

When examining Mauchly's test of sphericity for the one-way repeated measures ANOVA for GP, it was not significant ($p=.70$). Feedback was not significant ($F= 1.45$, $p=.24$, Partial eta squared = .05). When examining pairwise comparisons, there were no significant comparisons.

High Risk/Eager Negative Feedback First for GP

When examining Mauchly's test of sphericity for the one-way repeated measures ANOVA for GP, it was not significant ($p=.70$). Feedback was significant ($F= 3.41$, $p=.045$, Partial eta squared = .176). When examining pairwise comparisons, baseline GP was significantly different from GP after negative feedback ($p=.048$) such that baseline GP had a less vigilant GP ($M=3.21$, $SD=0.20$) than GP after negative feedback ($M=3.77$, $SD=0.25$). No other pairwise comparisons were significant.

Summary of Supplemental Findings

From these exploratory comparisons, it is clear that regulation is occurring, but that this regulation centers within the low risk/ vigilant group of participants when they received negative feedback. Low risk / vigilant participants demonstrated the expected pattern of increased risk after receiving negative feedback in the third trial. When low risk / vigilant individuals received negative feedback first, they tended to simply increase in risk from trial to trial. Therefore, there was a general trend of participants becoming more eager when also becoming riskier. For the high risk /eager participants, they did not demonstrate the expected conservative tactic shift after a gain. For GP strategy, there was one significant finding for those who received negative feedback first such that individuals became more eager after negative feedback. Across all of

these findings it is clear that the positive feedback trial did not lead to the expected risk tactic changes.

Latent Profile Analysis

In order to further understand the relationship between GP and risk, a series of within-trial and within RF one-way ANCOVAS were examined. Specifically, implementing GP as the covariate with risk as the DV. However, these ANCOVAS did not add any new insight past the correlation tables (table 2). When examining the correlation tables, for those who underwent the promotion focus prime across both orders of feedback, it was found that the riskier participants were, the more eager goal pursuit strategies they demonstrated. This correlation is in line with regulatory focus theory (Higgins et al, 2002). This pattern was not as strong for those primed to be in the promotion-focused condition, although all correlations were in the expected direction.

In order to further explore the relationship between risk and goal pursuit strategies, a series of latent profile analyses were conducted. An LPA is a type of latent class model which post hoc examines if individuals cluster into groupings of similar patterns of responses on the factors measured (Foti & McCusker, 2017). Specifically, three LPAs were examined, one for each feedback condition. Considering this is an exploratory analysis, for all LPA's, variances/covariances were constrained to be equal across profiles. Following best practice, model fit indices were obtained first for a two-profile solution, then three, continuing until finding the optimal number of profiles that fit the data. This number was determined by examining AIC, BIC, and entropy (Berlin, Williams, Parra, 2014; Tein, Coxe, & Cham, 2013). Additionally, the bootstrapped likelihood ratio test (BLRT) was examined when choosing the number of latent classes. The BLRT is a test in which the null hypothesis is that $k-1$ is the actual number of latent factors, while k is the number of classes currently being examined

in the model. Therefore, when evaluating the BLRT, a non-significant value indicates the previous number of classes fit better than the current number of classes.

Baseline LPA

After examining fit statistics (see table 4), a three-profile solution was identified (see figure 21). The first profile was characterized as conservative in terms of risk, and to be on the vigilant side of goal pursuit, this profile was labeled “conservative/vigilant.” This profile accounted for 6% of all participants. The second profile identified is characterized by those individuals falling in the middle on both risk and goal pursuit; this profile was labeled “Average risk/GP.” The Average risk/GP profile accounts for 75% of all participants. Finally, the third profile was characterized by slightly risky and a strong preference for eager goal pursuits, this profile was labeled “slightly risky/very eager.” This profile accounted for 19% of all participants.

Positive Feedback LPA

When examining the LPA for the participants after receiving positive goal discrepancy feedback, a four-profile solution was identified (see table 4 and figure 22). The first profile is characterized as have participants who are slightly risky and eager; this profile was labeled “slightly risky/eager.” This profile accounted for 71 percent of the participants. The second profile contained participants who were conservative in their risk, but only slightly vigilant in their goal pursuit, and this profile was labeled “conservative/slightly vigilant.” This profile accounted for 18% of participants. The third profile was characterized by extremely conservative risk levels ($M=5.16$ boxes chosen) with high vigilant goal pursuit. This profile was labeled “Extremely conservative/high vigilant.” This profile only accounted for 3% of the participants. Considering the extremely low mean of risk in this profile, the four participants who fell into this

profile were removed, and analyses were redone to examine any changes. However, no meaningful differences were detected. Finally, the fourth profile was characteristic of very high risk and eager goal pursuit, this profile was labeled “Very high risk/eager.” This profile accounted for 8% of the participants.

Negative Feedback LPA

When examining the LPA for the participants after receiving negative goal discrepancy feedback, a three-profile solution was identified (see table 4 and figure 23). The first profile includes participants who fall in the middle on risk and goal pursuit; this profile was given the same label as from the baseline, “Average risk/GP.” This profile accounted for 80% of participants. The second profile consists of participants who were conservative in terms of risk and vigilant in terms of their goal pursuit strategies; this profile is labeled “conservative/vigilant.” This profile accounts for 11% of the participants. Finally, the third profile is characterized as very high risk and eager goal pursuit, and this profile was labeled “Very high risk/eager.” This profile accounts for 9% of the participants.

Comparing Profiles

When considering how these latent profiles changed depending on the type of feedback received, the baseline and the after negative feedback profiles were the most similar, while profiles after positive feedback were unique compared to the other LPA analyses. Both the baseline and after negative feedback had an “Average risk/GP.” Additionally, both the baseline and the after negative feedback profiles had a profile where participants were more conservative/vigilant and one where participants were riskier and more eager. However, the after negative feedback profiles were more extreme in their averages, with the “very high risk/eager”

profile having a mean of 80 boxes chosen while in the baseline, the mean for “slightly risky/very eager” was 57. The profiles after positive feedback, although unique in the extra profile of “extremely conservative/high vigilant,” did have a “very high risk/eager” profile, which was very similar to the after negative feedback profile, also labeled “very high risk/eager.”

Additionally, the positive profiles also had a “slightly risky/eager” profile, which was very similar to baseline’s “slightly risky/very eager” profile. Finally, the after positive feedback profiles also had a conservative profile “conservative/slightly vigilant” as did the baseline and after negative feedback. However, in this profile, the participants' goal pursuit was just barely on the vigilant side. Additionally, order and profile membership were examined (see table 5). The order in which participants’ received goal discrepancy feedback did not appear to drive profile membership for most of the profiles. This finding indicates that these profiles emerge across orders and were driven by the type of feedback (positive/negative goal discrepancy feedback) and not the order in which the feedback was received.

Discussion

The goal of this study was to examine self-regulation after goal discrepancy feedback in a regulatory focus framework. Specifically, to determine how both risk and goal pursuit strategy changes within an individual based on their regulatory focus, and the type of goal discrepancy feedback received (positive or negative). Competing hypotheses were developed, differing in the predictions for goal pursuit strategy such that either GP strategy would remain consistent over trials or GP strategy would shift, becoming more eager as individuals became riskier or becoming more vigilant as individuals became less risky.

These predicted regulatory patterns were predicated on the RF prime, putting individuals in a high risk / eager state (promotion focus) or a low risk / vigilant state (prevention focus) for the first trial of the game (baseline). However, the RF manipulation did not produce the expected effect. The manipulation led to the opposite effects where promotion-focused primed individuals were less risky and more vigilant than prevention-focused primed individuals. Therefore, it is difficult to interpret the regulation found from hypothesis testing (see figures 14 to 17).

In order to better understand the regulation that did occur, the baseline for risk and GP were used to recategorize the participants into two groups: low risk / vigilant GP and high risk / eager GP. When examining regulation over trials for these two groups of participants, most of the regulation occurred within the low risk / vigilant GP group (see figure 11 and 12).

Furthermore, this regulation provides support for hypothesis 2b. These low risk / vigilant GP individuals became riskier after negative feedback as well as more eager (see figures 16 and 17). This finding provides some support for the idea that when the situation dictates a need for a new tactic (i.e., risk-taking), the new tactic initiates a bottom-up RF system shift such that GP switches to become more eager, matching the new tactic implemented. There was minimal

regulation for the high risk /eager participants (see figures 19 and 20). In general, after receiving positive feedback, these individuals tended to maintain whatever tactic they had previously been implementing. This finding does not support either of the competing hypotheses.

Risk and GP Strategy Relationship

When examining the correlation table, it was clear that higher levels of eager goal pursuit were connected to higher levels of risk, and higher levels of vigilant goal pursuit were connected to lower levels of risk. Although the relationship was not significant for those participants in the prevention focus prime condition, the relationship was still in the expected direction. In general, this finding is consistent with RFT in that higher levels of risk are typically a tactic associated with falling under an eager goal pursuit strategy, and lower levels of risk is a tactic associated with a vigilant goal pursuit strategy (Bryant & Dunford, 2008; Kuhberger & Wiener, 2012; Scholer & Higgins, 2011). This pattern of correlations gives some credence to the newly developed goal pursuit instrument (GPSS); it appears it is possible to measure goal pursuit strategies used for even a task as simple and abstract as the BRET.

Three latent profile analyses were conducted to further explore the relationship between risk and goal pursuit strategy and how that relationship functions after differing goal discrepancy feedback. For the baseline profiles (see figure 20), there was a high percentage of participants falling in an average profile where they were in the middle on both risk and GP. This profile further highlights the failure of the RF prime in that the majority of the participants were not clearly in a promotion or prevention-focused state. Additionally, across all three LPAs, higher vigilant scores were connected to lower risk, and higher risk was connected to higher levels of eager GP. This finding indicates that as risk tactics change, so does GP strategy. It lends to the

possibility that tactics are not cognitively reframed as proposed in hypothesis one, but rather cause a bottom-up shift in the regulatory focus system as proposed in hypothesis two.

Methodological Considerations

BRET-Task and Goal Discrepancy

Aside from the failed prime, there are other methodological considerations when exploring why there was little change in risk/GP occurring for the high risk / eager GP group participants. First, is the abstractness of the static version of the BRET. Past regulatory focus studies and prospect theory studies implemented tasks that were less abstract, such as an investment task (E.g., Scholer, Zou, Fujita, Stroessner, and Higgins, 2010) or choices between probabilities of winning/losing money (e.g., Kahneman & Tversky, 1979). In contrast, participants simply chose a number on a sliding scale 10 boxes at a time, with each sliding scale representing one grid of boxes. This is much more abstract than the previous examples listed. It is hard to predict how the abstractness of the game may have affected the participant's self-regulation.

Another element of the BRET task that should be considered is the fact that participants did not know when the game would be over. Perhaps not knowing when the game was going to end effect participants in a way that was unexpected. It is possible that those individuals who started out as high risk/ eager may have not felt the need to be conservative after a gain because of the possibility for playing many rounds. Another consideration lies with the goal discrepancy manipulation, specifically the positive goal discrepancy feedback condition. It is possible that this positive feedback of the 87th percentile did not create a gain state but instead simply reinforced the participants' current strategy.

Within-Subject Design

A final possibility involves the within-subjects nature of the design. Past RF and prospect theory studies involving behavior under loss/gain situations, examining the phenomenon from a static perspective (Jervis, 2004; Kahneman & Tversky, 1979; Scholer, et al., 2010; Zou, et al., 2014). It is possible that when there is repetition involved, individuals do not have the same motivation to be conservative after a gain that they do when there is a single decision in isolation to make. Furthermore, these past studies compared risk levels between groups, unlike in the current study, which examined change within the individual. It is possible that the effects of a gain situation are not as strong within-subjects as it is between-subjects.

Conclusions, Future Directions, and Limitations

This was the first study to measure GP strategy along with tactic behavioral change in a within-person framework in order to fully examine the pattern of self-regulation in a gain/loss context. Although the RF prime did not work, there was some support for hypothesis 2, in that those individuals who started out with low-risk tactics and a vigilant goal pursuit became riskier and more eager after negative feedback. This finding goes against Scholer and Higgins' (2011) theory that in some contexts, individuals do not shift GP after tactics change but instead cognitively redefine the tactic to fit with the original GP strategy.

Future research should continue to examine self-regulation from a within-person design. Additionally, future research should continue to examine RF from a pattern perspective. Specifically, techniques such as latent transition analysis should be considered. Limitations include a lack of generalizability due to the homogenous sample of college-aged psychology students. Additionally, the failed prime was a significant limitation in that it hindered a formal test of the hypotheses. A final limitation is the lower reliabilities for the GPSS scale. Lower

reliabilities increase the probability of Type II errors, however, effects were found for GP strategy suggesting adequate levels of systematic variance in the GPSS were present. Low reliabilities are more concerning when considering the LPAS. The low reliabilities do raise concern for the LPAS in that measurement error may lead to miss-classification of individuals (Lanza, Bray, & Collins, 2013). After examining Spearman Brown prophecy for the GPSS reliabilities, with 15 items, there were reliabilities of .82 for the baseline, .89 for after positive feedback, and .85 for after negative feedback. Therefore, the GPSS scale would increase in reliability if more items were included. This should be concerned for future research, especially when implementing latent profile analyses.

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Tables

Table 1.

Correlations, Means, and Standard Deviations across Order and RF

Variable	M	SD	1	2	3	4	5	6
Baseline Risk	47.79	12.7	-	.56**	.48**	-.48*	-.21*	-.06
Risk After Positive Feedback	51.13	15.57		-	.61**	-.24**	-.32**	-.21*
Risk After Negative Feedback	51.29	13.71			-	-.11	-.27**	-.31**
Baseline GP	3.96	1.13				-	.35**	.37**
GP After Positive Feedback	3.67	1.24					-	.54**
GP After Negative Feedback	3.7	1.28						-

Note. N=139. A higher score for GP is indicate of a higher vigilant goal pursuit and a lower score is indicative of higher eager goal pursuit

Table 2.
Correlations, Means, and Standard Deviations Broken Down by Order and RF

Variable	M	SD	1	2	3	4	5	6
Order 1 (positive feedback first) and Promotion Focus								
1. Baseline Risk	45.46	13.08	-	.84**	.56**	-.71**	-.44**	-.46**
2. Risk After Positive Feedback	45.01	15.02		-	.22	-.68**	-.46**	-.38*
3. Risk After Negative Feedback	49.41	15.68			-	-.30	-.21	-.38*
4. Baseline GP	4.03	1.24				-	.46**	.65**
5. GP After Positive Feedback	4.20	1.31					-	.43*
6. GP After Negative Feedback	3.93	1.25						-
Order 2 (negative feedback first) and Promotion focus								
1. Baseline Risk	45.62	9.56	-	.19	.16	-.26	.05	.21
2. Risk After Positive Feedback	53.78	11.57		-	.83**	.01	-.39*	-.39*
3. Risk After Negative Feedback	51.63	10.78			-	.06	-.25	-.47**
4. Baseline GP	4.04	1.06				-	.15	.29
5. GP After Positive Feedback	3.63	1.09					-	.39**
6. GP After Negative Feedback	3.43	1.22						-
Order 1 (positive feedback first) and Prevention focus								
Baseline Risk	52.28	13.32	-	.88**	.47**	-.45**	-.05	.10
Risk After Positive Feedback	55.26	13.05		-	.54*	-.22	-.03	.20

Table 2 continued.

Risk After Negative Feedback	52.97	12.11	-					
Baseline GP	3.68	1.36						
GP After Positive Feedback	3.43	1.27						
GP After Negative Feedback	3.77	1.39						
Order 2 (Negative feedback first) and Prevention focus								
Baseline Risk	47.92	13.67	-	.41*	.56**	-.40*	-.19	-.03
Risk After Positive Feedback	50.84	19.80						
Risk After Negative Feedback	51.23	15.76						
Baseline GP	4.07	0.79						
GP After Positive Feedback	3.40	1.16						
GP After Negative Feedback	3.64	1.24						

Note. Ns were in order as follows 36, 34, 34, 35. Higher GP scores indicate higher levels of vigilant goal pursuit while lower numbers indicate higher levels of eager goal pursuit.

Table 3.

Mixed ANOVAs for those in the Promotion Primed Group.

Risk	F	η^2
Order	2.24	.032
Feedback	5.56**	.076
Order X feedback	4.11*	.057
GP		
Order	2.44	.035
Feedback	2.61	.037
Order X feedback	2.07	.03

Note. $N=70$. ** $p < .01$ * $p < .05$

Table 4.

Fit Indices for Latent Profile Analyses.

Baseline	Profiles	AIC	BIC	Entropy	BLRT
	2	1522	1542	0.65	.001
	3	1504	1534	0.81	.001
	4	1510	1548	0.49	.515
Positive feedback	2	1610	1631	0.63	.0010
	3	1607	1636	0.71	.089
	4	1578	1616	0.83	.001
	5	1583	1630	0.63	.743
Negative feedback	2	1584	1605	0.69	.050
	3	1551	1581	0.92	.001
	4	1557	1595	0.56	.96

Note. The bolded row was the chosen number of profiles for each feedback level.

Table 5.

Profiles for each feedback level broken down by order of feedback received.

	Profile	Positive Feedback first	Negative feedback first
Baseline	Conservative/Vigilant	6	2
	Middle	47	58
	Slightly Risky/Very Eager	17	9
Positive feedback	Slightly Risky / Eager	51	48
	Conservative/ Slightly Vigilant	11	14
	Extremely Conservative/ High Vigilant	3	1
	Very High Risk / Eager	5	6
Negative feedback	Middle	56	55
	Conservative / Vigilant	8	7
	Very High Risk / Eager	6	7

Figures

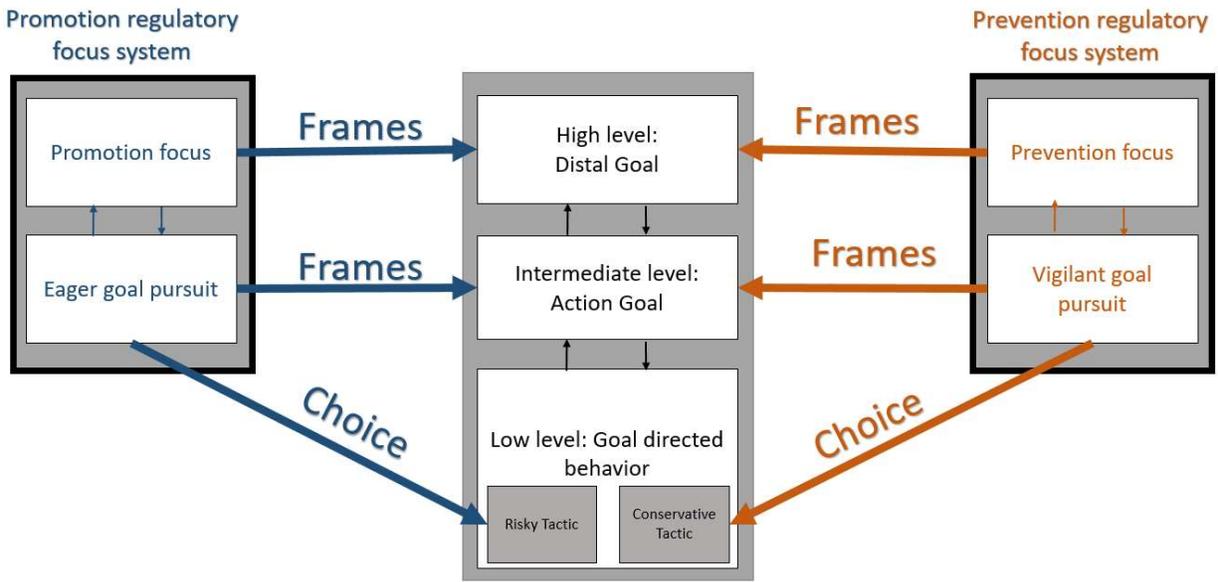


Figure 1. The conceptual model of RFT and Lord et al. (2010) self-regulation theory without goal discrepancy feedback.

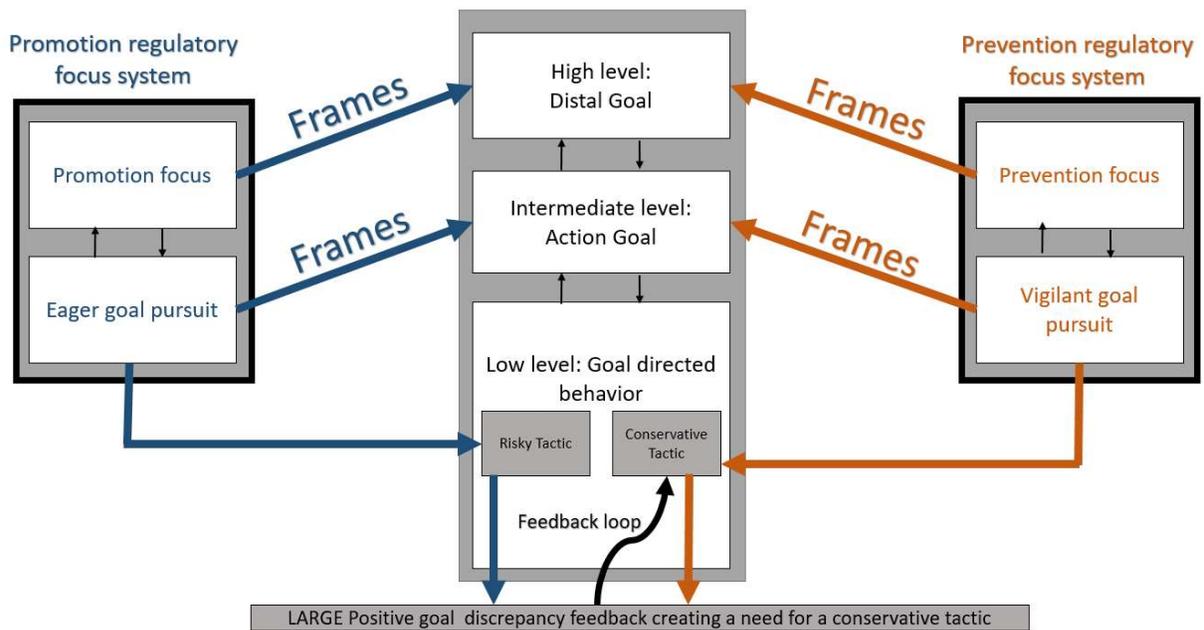


Figure 2. Hypothesis 2a: Self-regulation after a large positive goal discrepancy feedback.

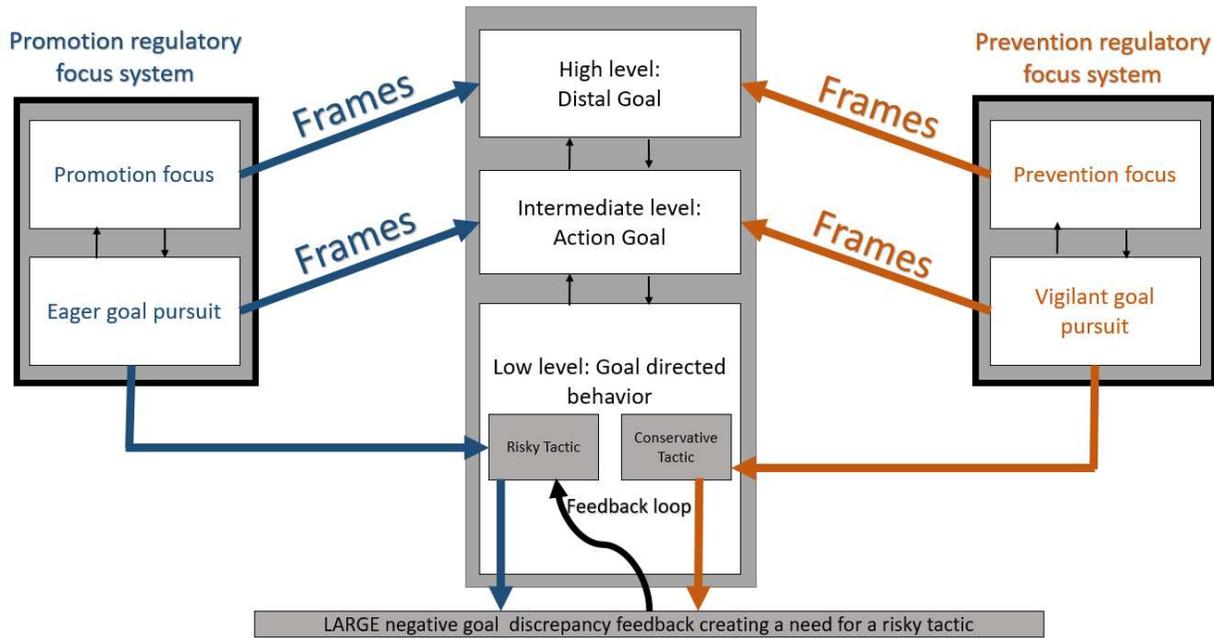


Figure 3. Hypothesis 2b: Self-regulation after a large negative goal discrepancy feedback.

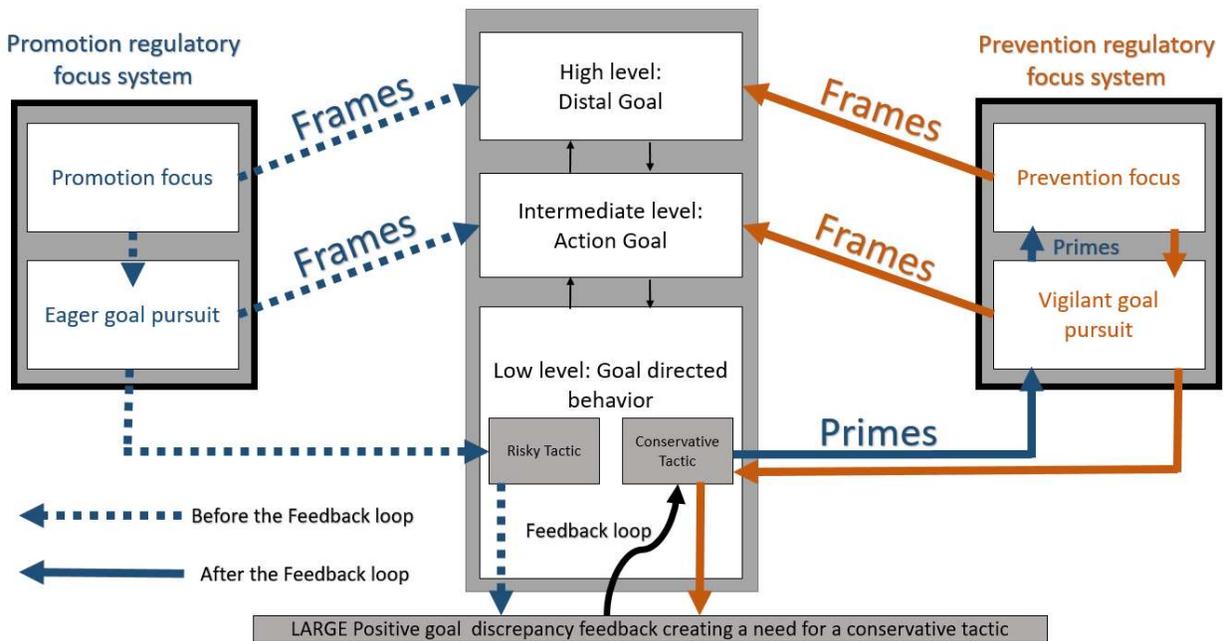


Figure 4. Hypothesis 3a: Self-regulation after a large positive goal discrepancy feedback.

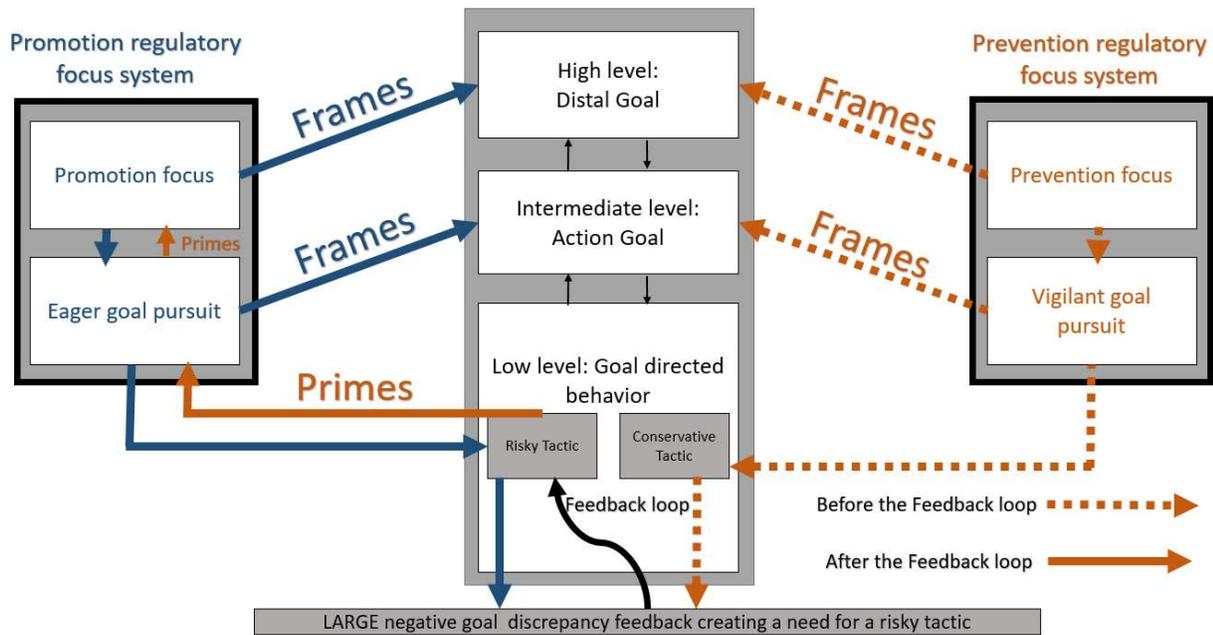


Figure 5. Hypothesis 3b: Self-regulation after a large negative goal discrepancy feedback.

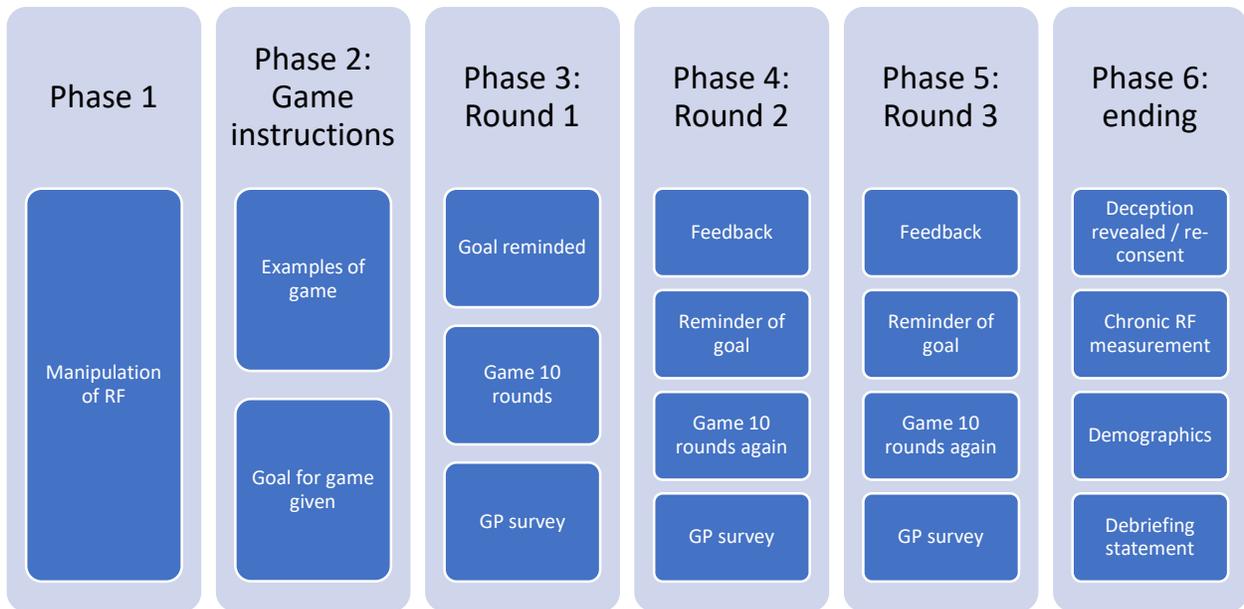


Figure 6. A visual representation of the procedure.

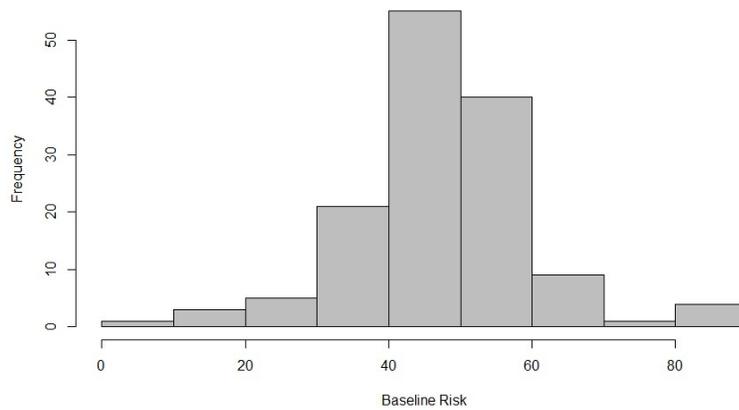


Figure 7. Histogram of baseline risk.

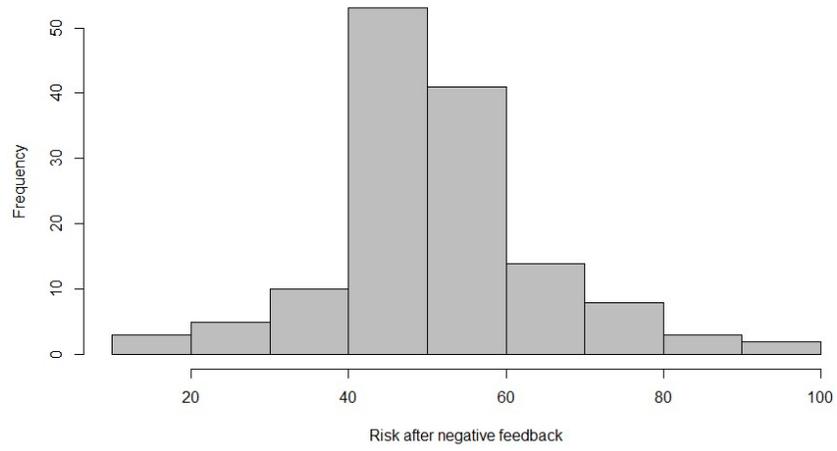


Figure 8. Histogram of Risk after Negative Feedback.

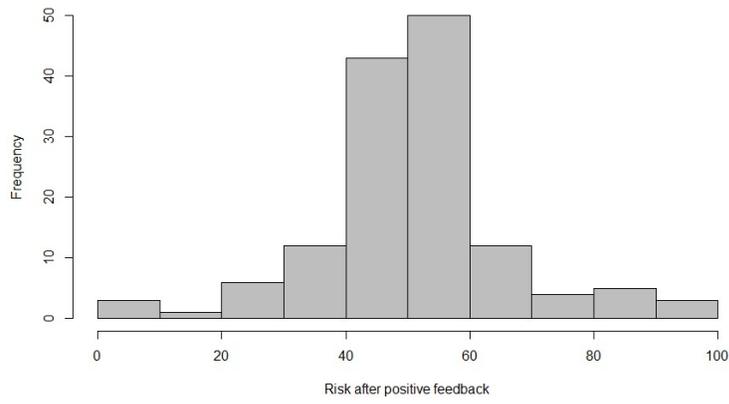


Figure 9. Histogram of Risk after Positive Feedback.

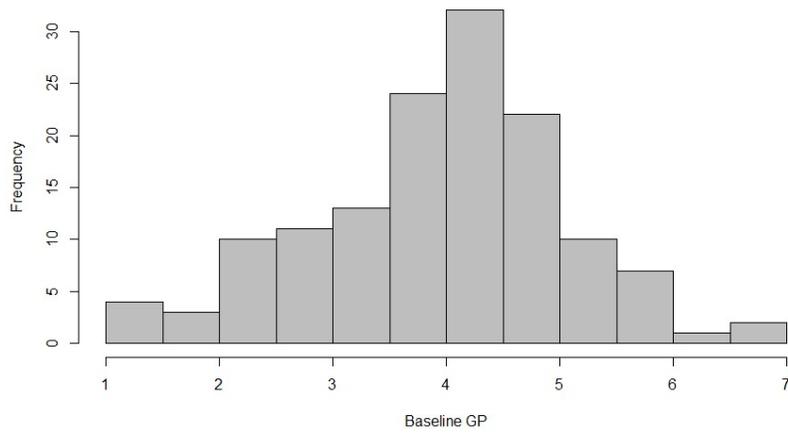


Figure 10. Histogram of GP Baseline.

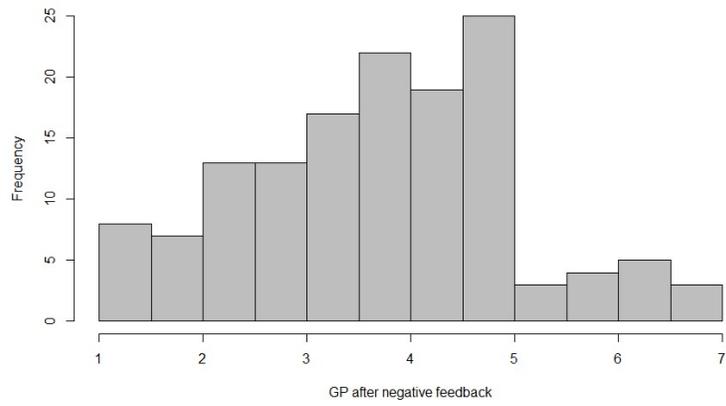


Figure 11. Histogram of GP after Negative Feedback.

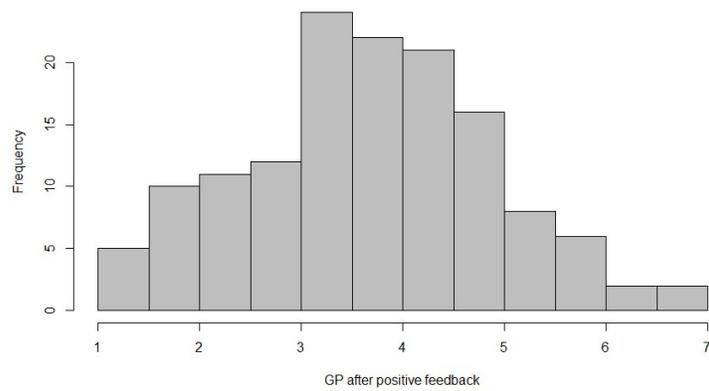


Figure 12. Histogram of GP after Positive Feedback.

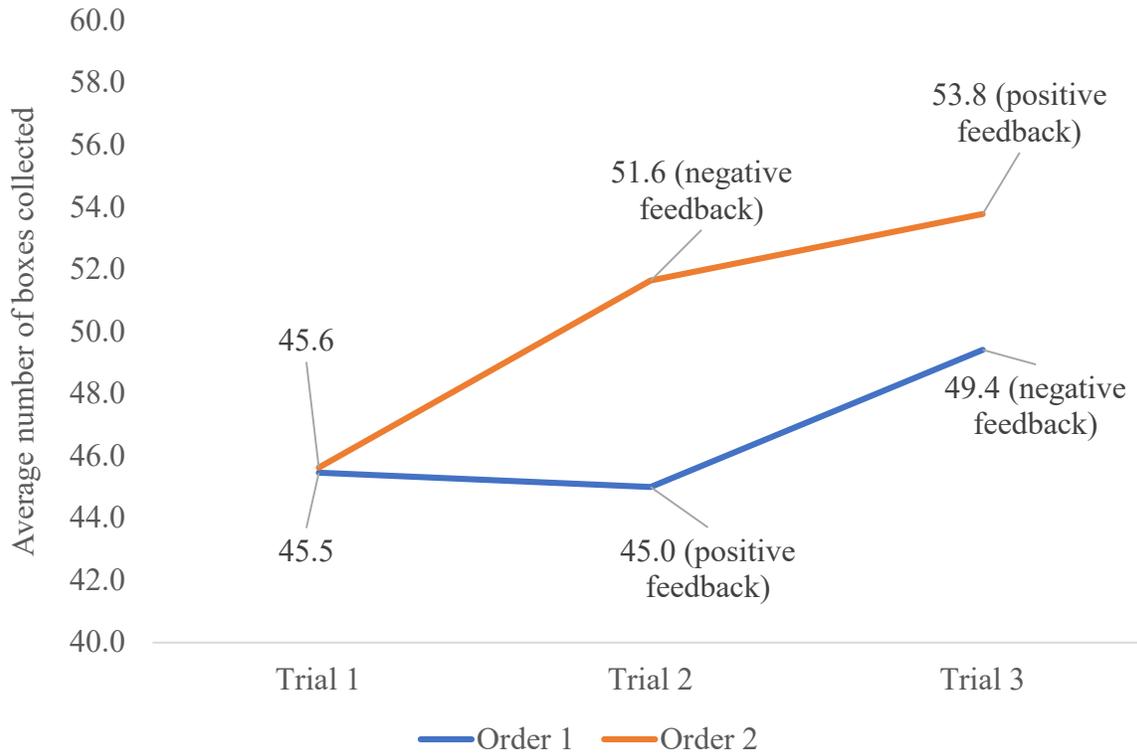


Figure 13. *Interaction between order and feedback on risk for those who were in the primed promotion group. Note. N=70.*

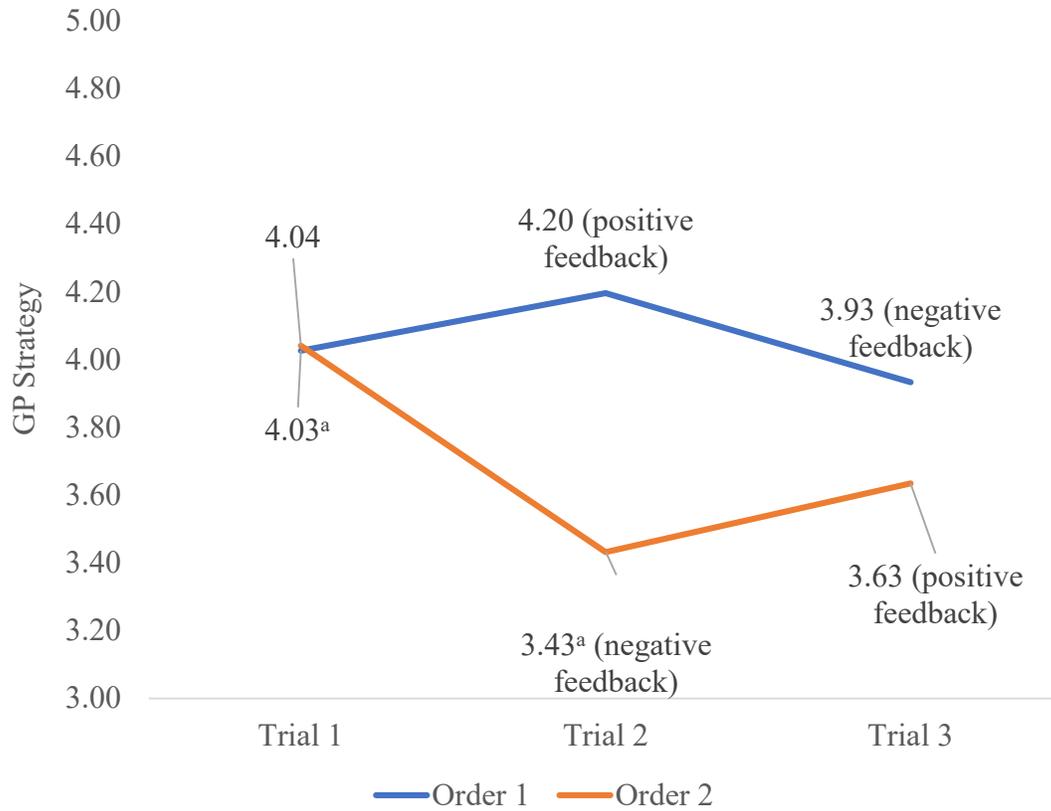


Figure 14. *Interaction between order and feedback on GP for those who were in the primed promotion group. Note. N=70. Matching superscripts indicates a statistically significant difference. A higher score is indicative of a more vigilant goal pursuit.*

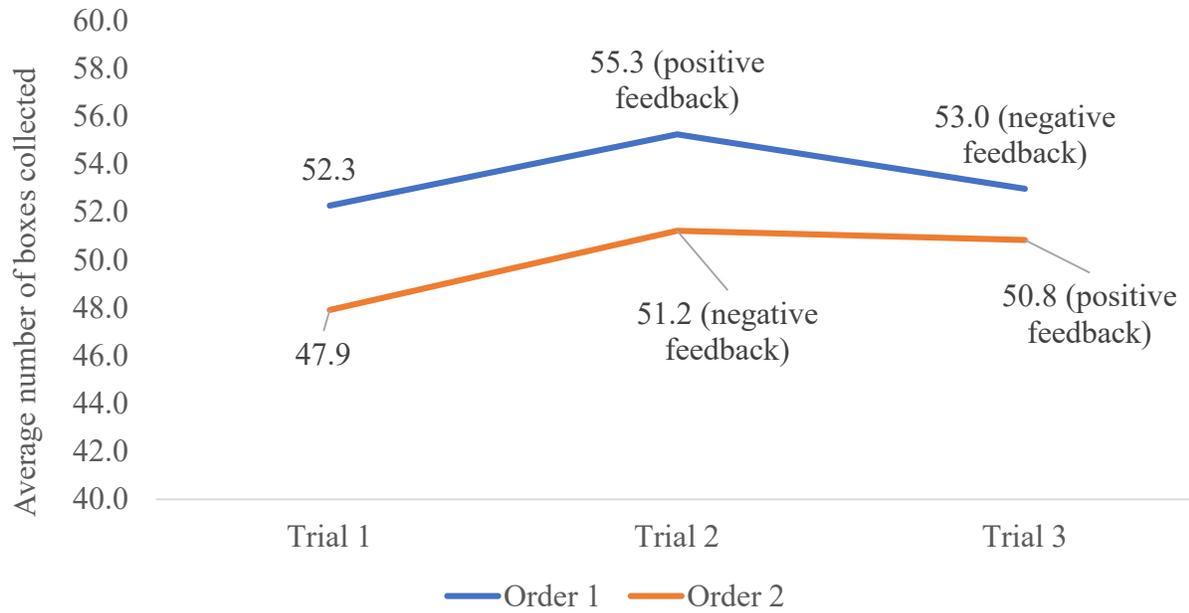


Figure 15. *Non-significant interaction between order and feedback on risk for those who were in the primed prevention group. Note. N=69. Analyses were tested across order, there were no significant contrasts.*

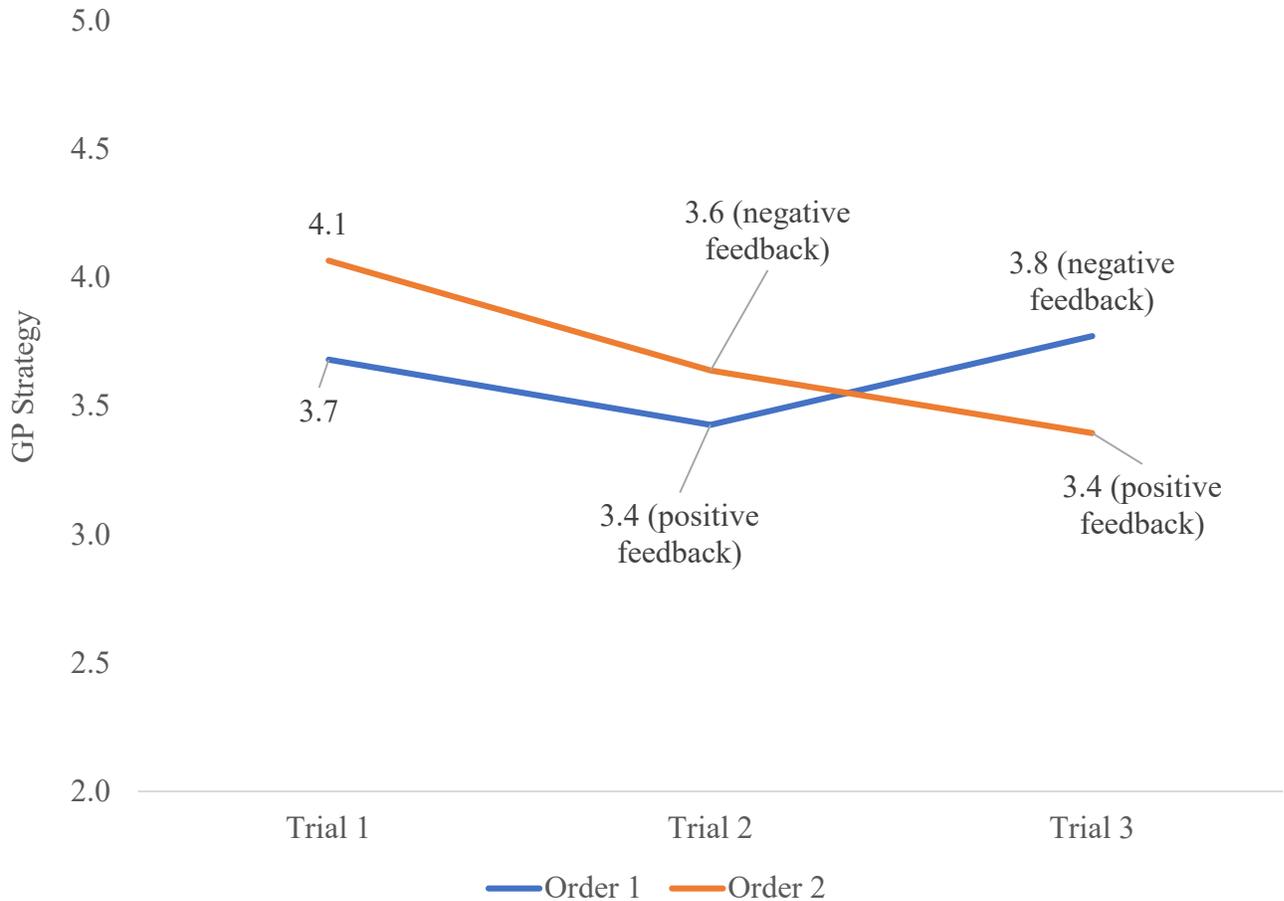


Figure 16. *Non-significant interaction between order and feedback on GP for those who were in the primed prevention group. Note. N=69. Analyses were conducted across order, baseline GP to GP after positive feedback was statistically significant ($p=.005$). A higher score is indicative of higher levels of vigilant GP strategy.*

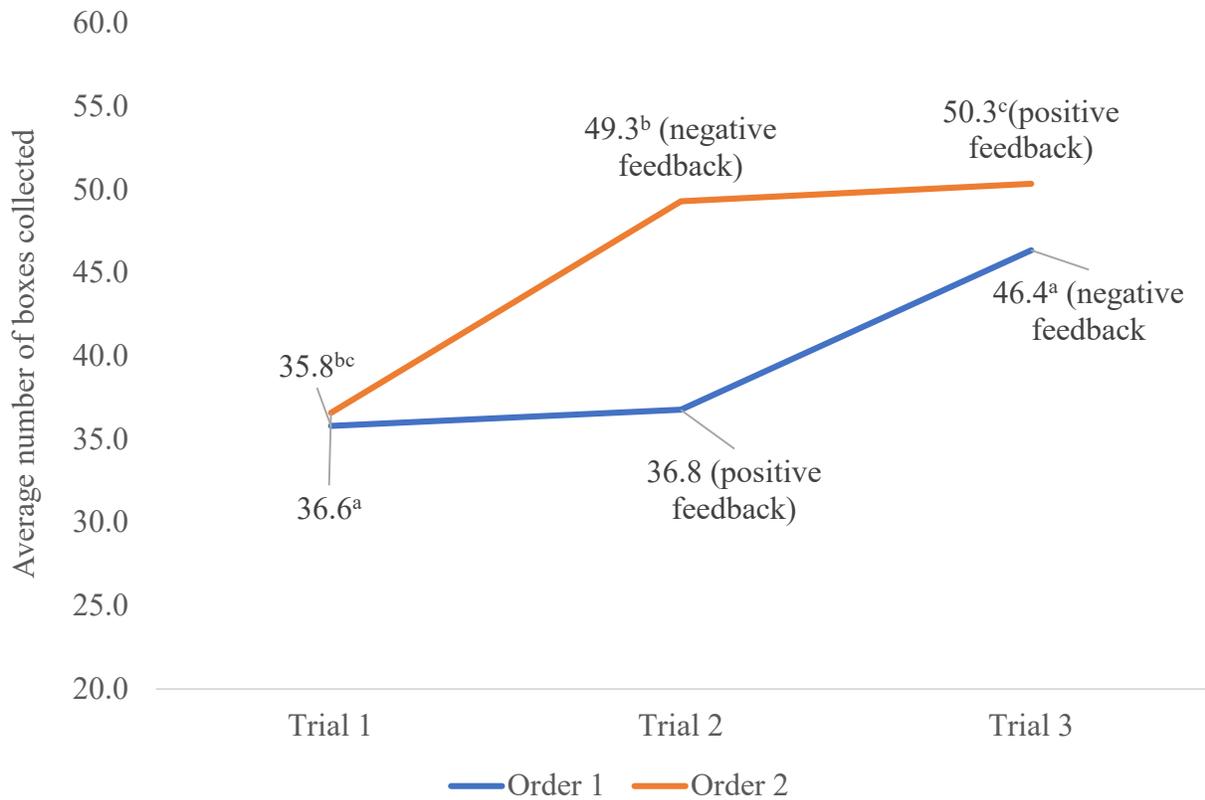


Figure 17. *The interaction between feedback and order on risk for those categorized as low risk / vigilant. Note. N=32. Matching superscripts indicate significant or approaching significant differences.*

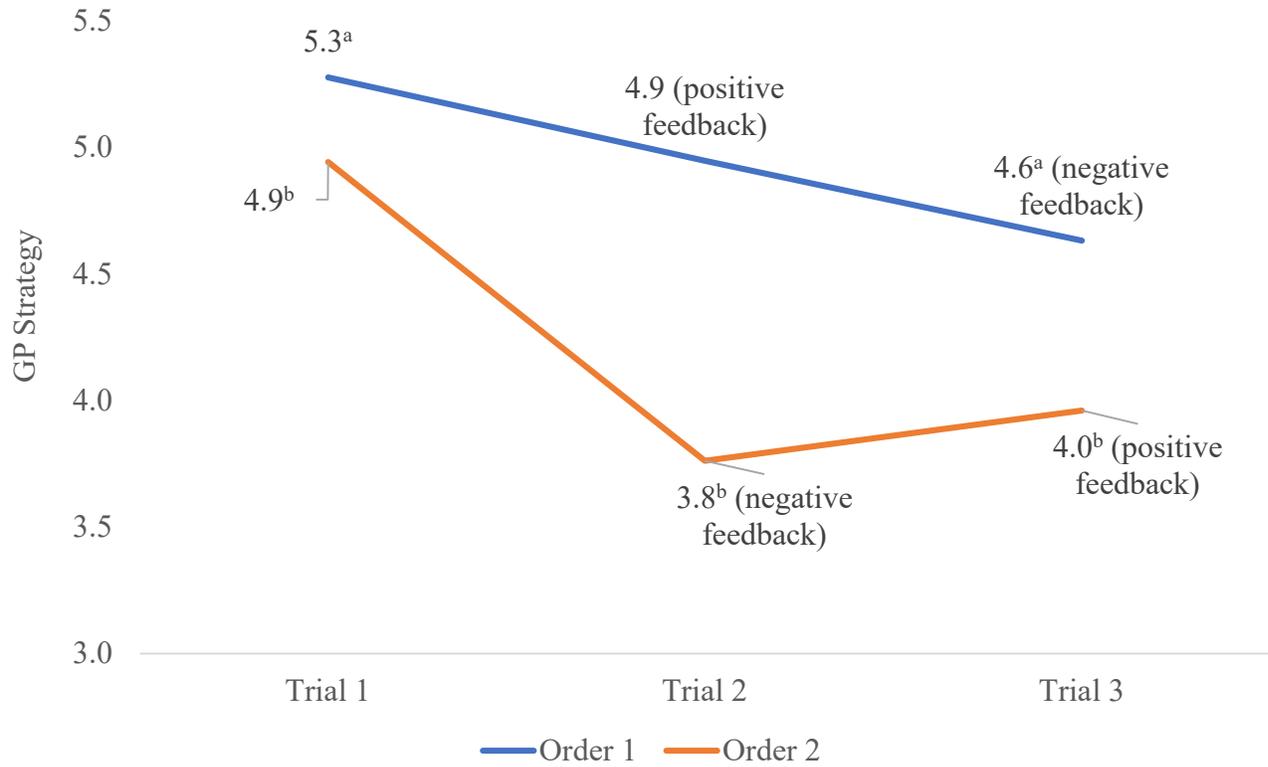


Figure 18. *The non-significant interaction between feedback and order on GP for those categorized as low risk / vigilant. Note. N=32. The main effect of order was significant. Matching superscripts indicate significant or approaching significant differences. A higher score is indicative of higher levels of vigilant GP strategy.*

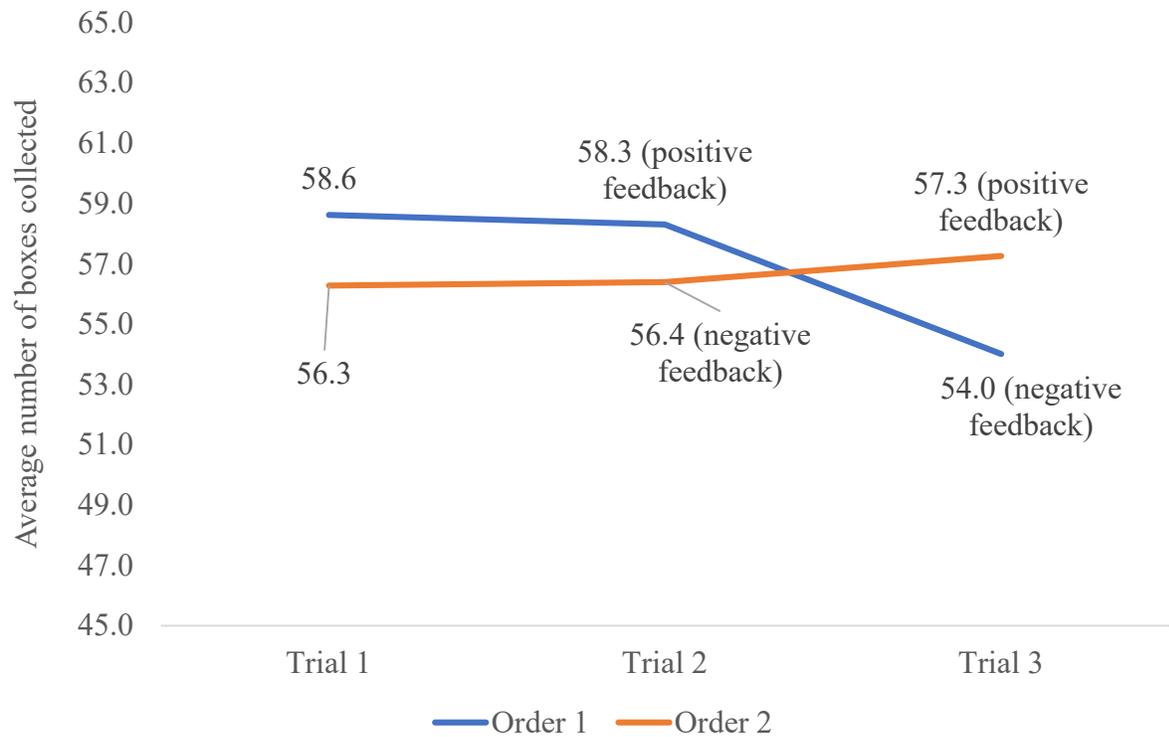


Figure 19. *The non-significant interaction between feedback and order on risk for those categorized as high risk / eager. Note, N=44. Analyses were done across order. There were no significant contrasts.*

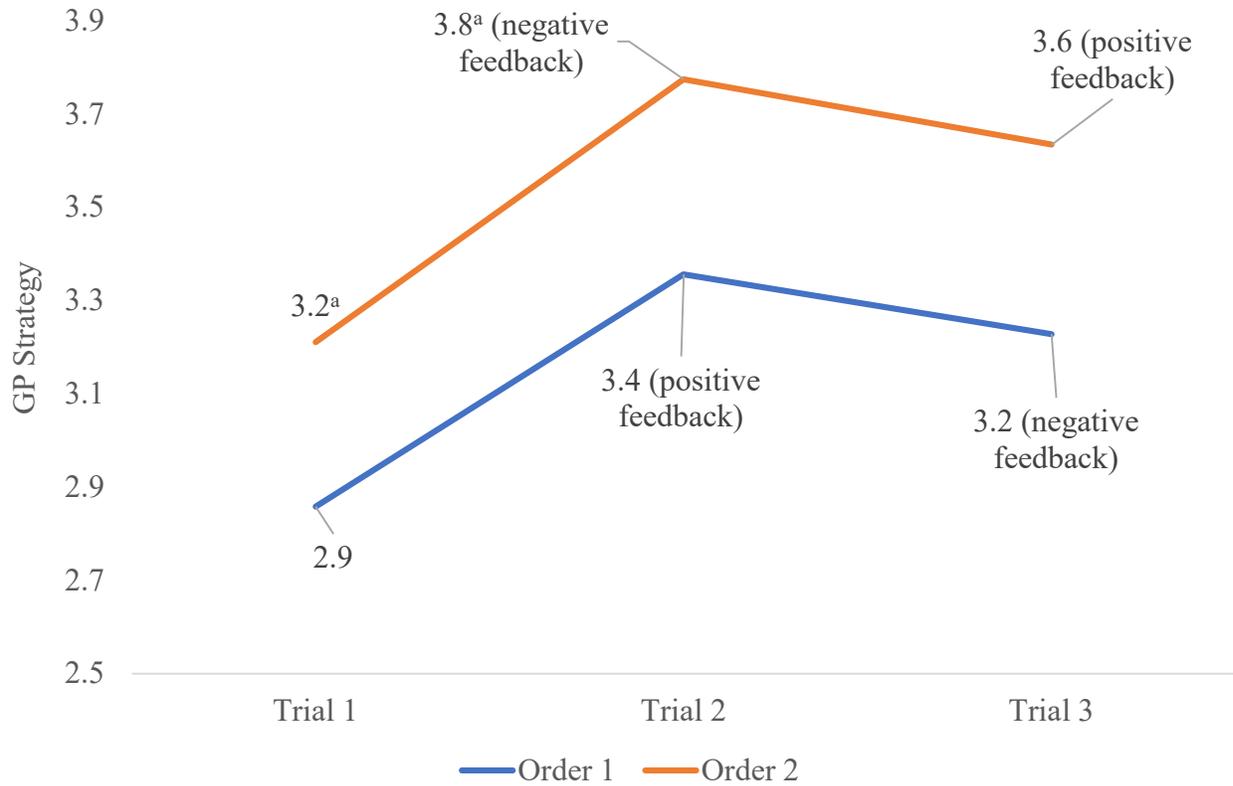


Figure 20. *The non-significant interaction between feedback and order on GP for those categorized as high risk / eager. Note. N=44. There was a main effect of order. Matching superscripts indicate significant differences. A higher score is indicative of higher levels of vigilant GP strategy.*

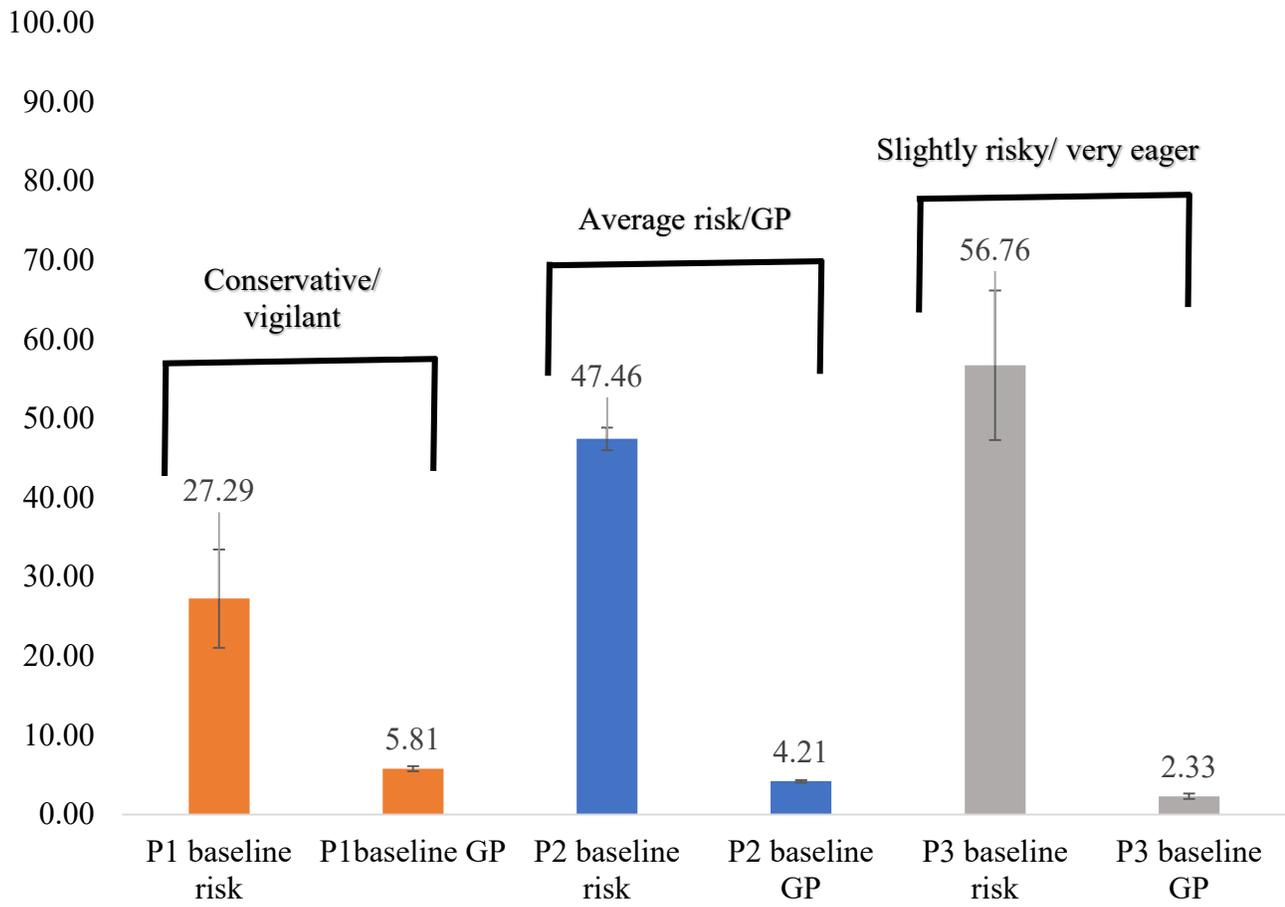


Figure 21. Profiles from the latent profile analysis on the baseline levels of risk and GP. N=139.

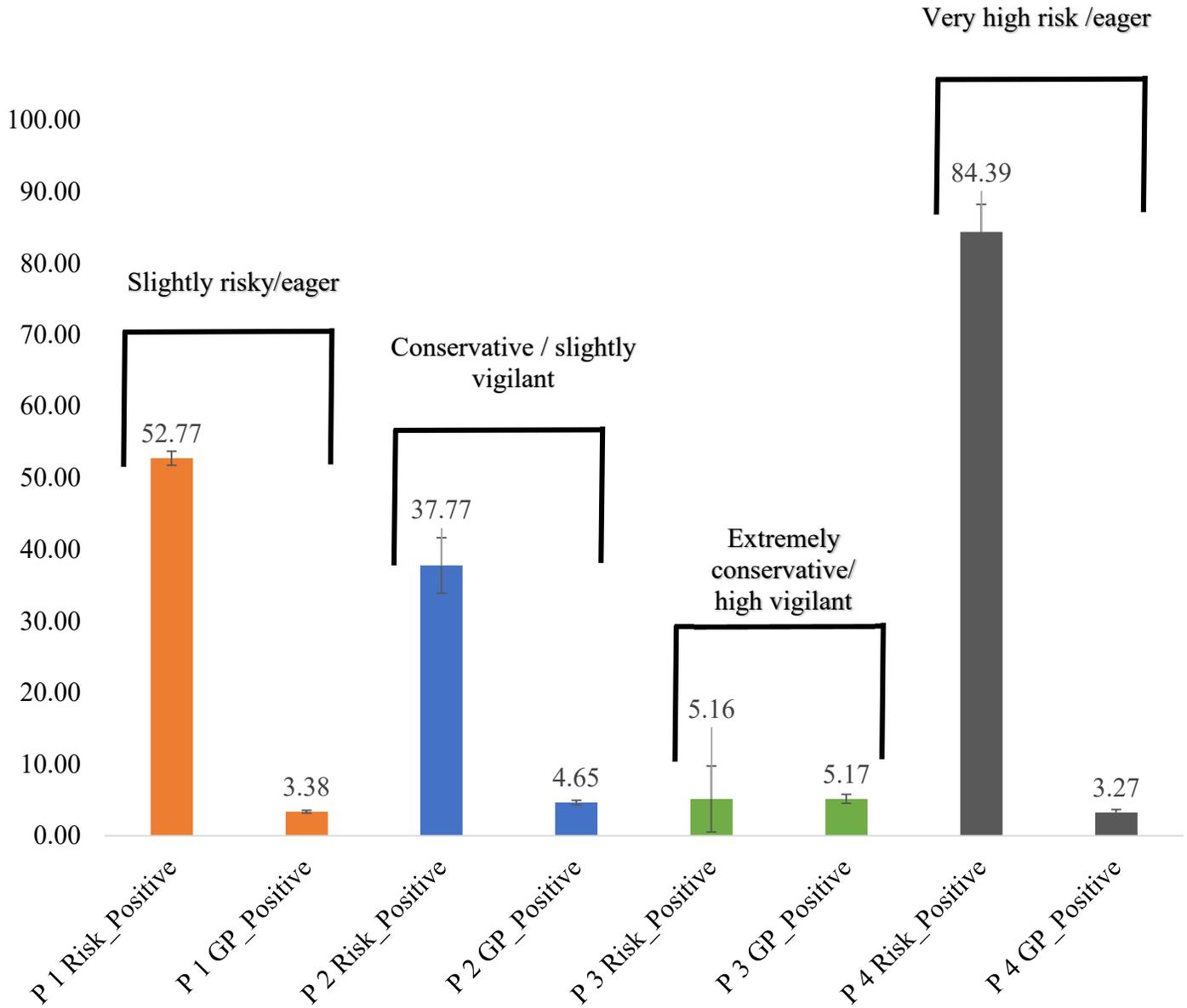


Figure 22. Profiles from the latent profile analysis for GP and risk after receiving positive feedback. N=139.

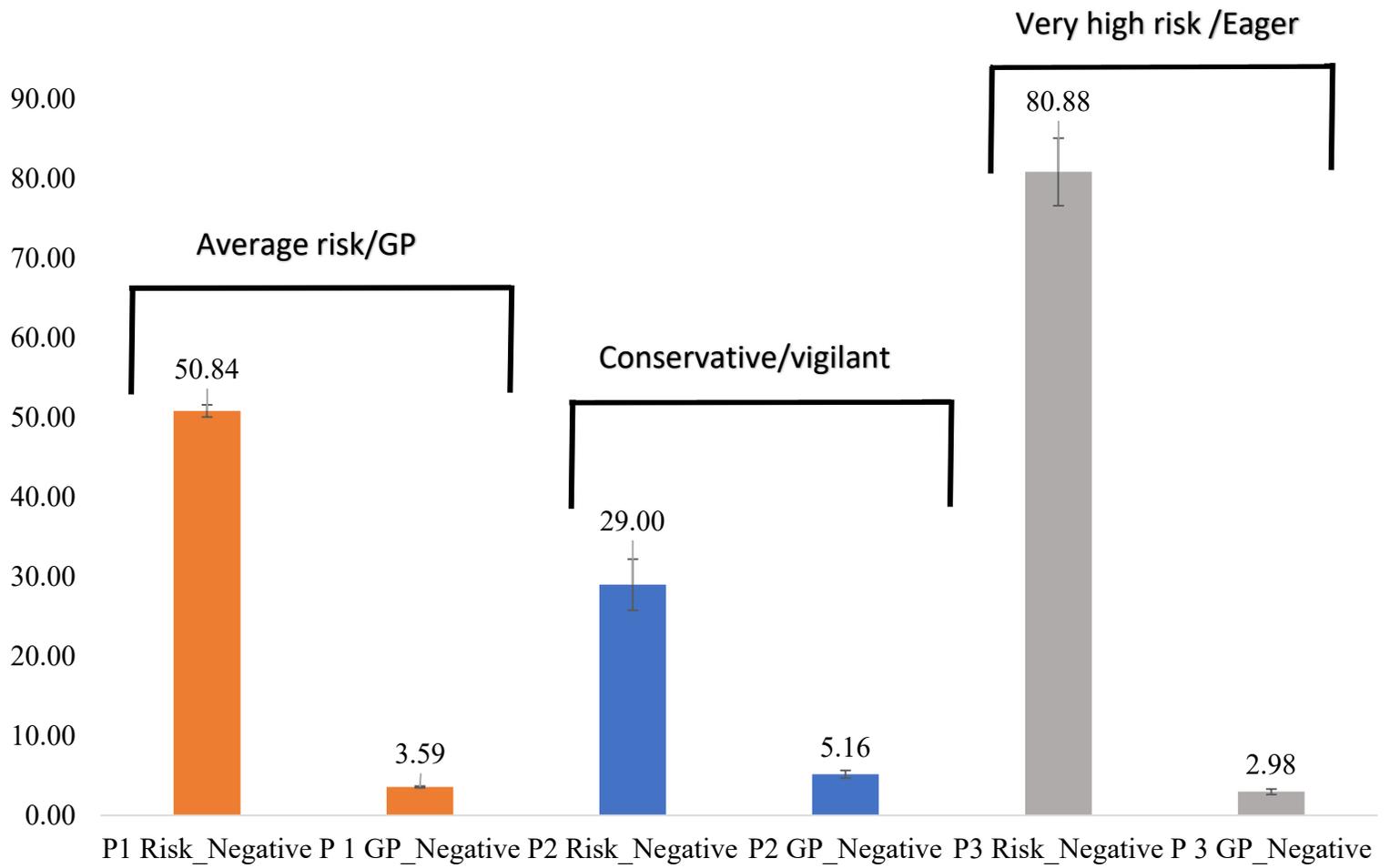


Figure 23. Profiles from the latent profile analysis on risk and GP after receiving negative feedback. N=139.

Appendix A

BRET task instructions

For the next portion of this study you will be playing a game. Depending on your performance on this game you may be entered into a drawing to win a \$100 visa gift card. The next series of pages will explain this game in greater detail.

In this game you will be collecting boxes. Each box is worth one point. Every time you choose an amount of boxes to collect you will be choosing them from 100 boxes in a 10 by 10 grid. The boxes are randomly placed by the computer.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

The catch is that in every 10 by 10 grid, **there is a randomly placed bomb under one of the boxes!** If you get that bomb, then you will receive no points for that 10 by 10 grid. The bomb is randomly placed by the computer each time.

Read through the examples below:

Lets say you choose 50 boxes from the 10 by 10 grid below. The computer randomly chooses the boxes, here they are presented as green. As you can see the bomb was not under one of the green boxes (it was located in box 45), therefore you would have received

50 points!!!!

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	58	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Now lets look at a different 10 by 10 grid where you again choose 50 boxes. As you can see the bomb was under one of the green boxes (it was located in box 46), therefore you would

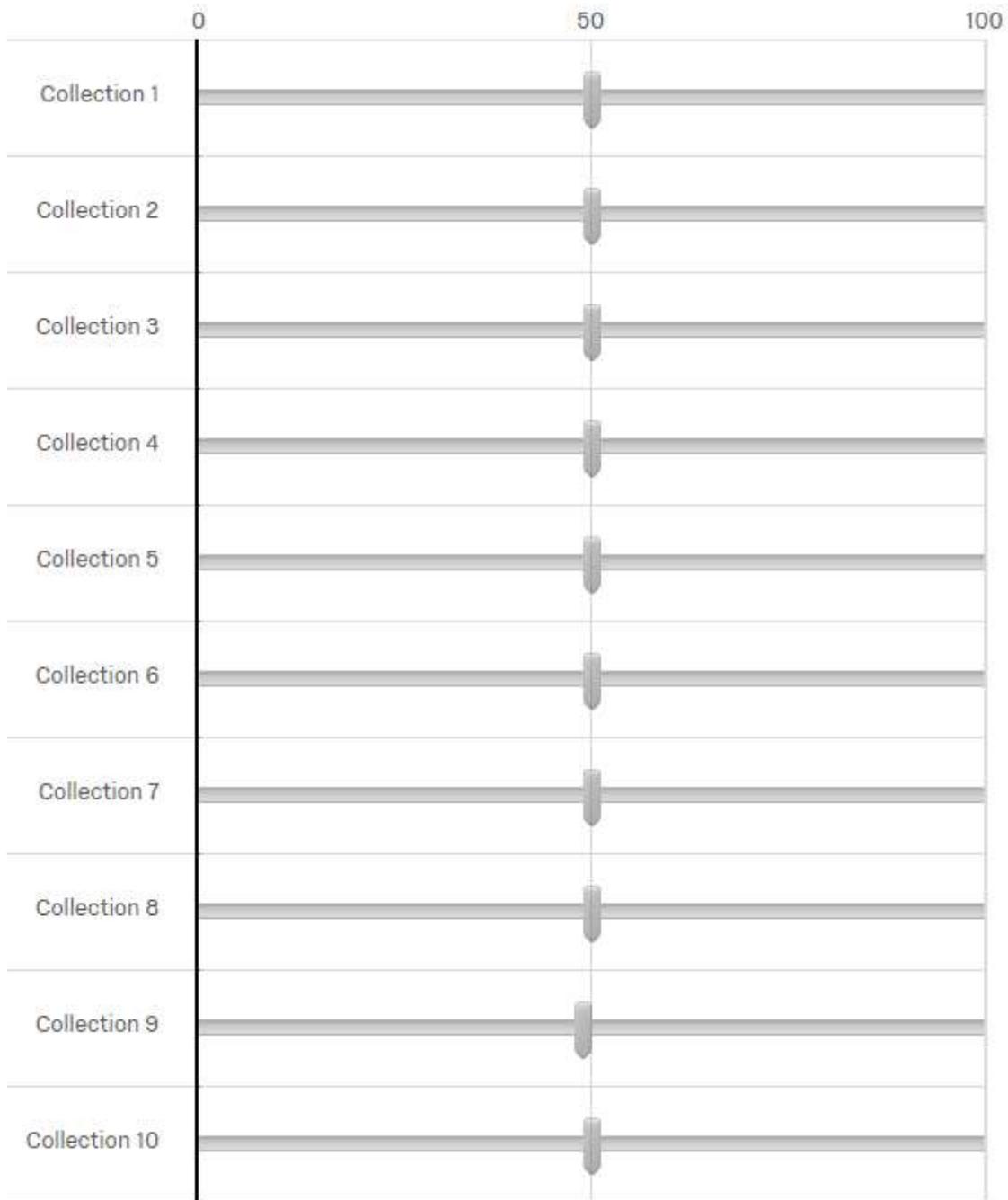
have received 0 points for this 10 by 10 grid.

0 points!!!

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	 46	47	48	49	50
51	52	53	54	55	56	57	58	58	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

During the course of this game you will be collecting boxes from multiple 10 by 10 grids. These grids will be split up into a set number of rounds with ten 10 by 10 grids per round. You will not be told when you are on the last round until it is over.

You will receive points for every box you collect in each round. If you have a bomb in one of the collections, you will receive 0 points for that collection from that 10 by 10 grid only. Therefore, the only way you would receive 0 after a round is if you collected a bomb in each of the 10 collections.



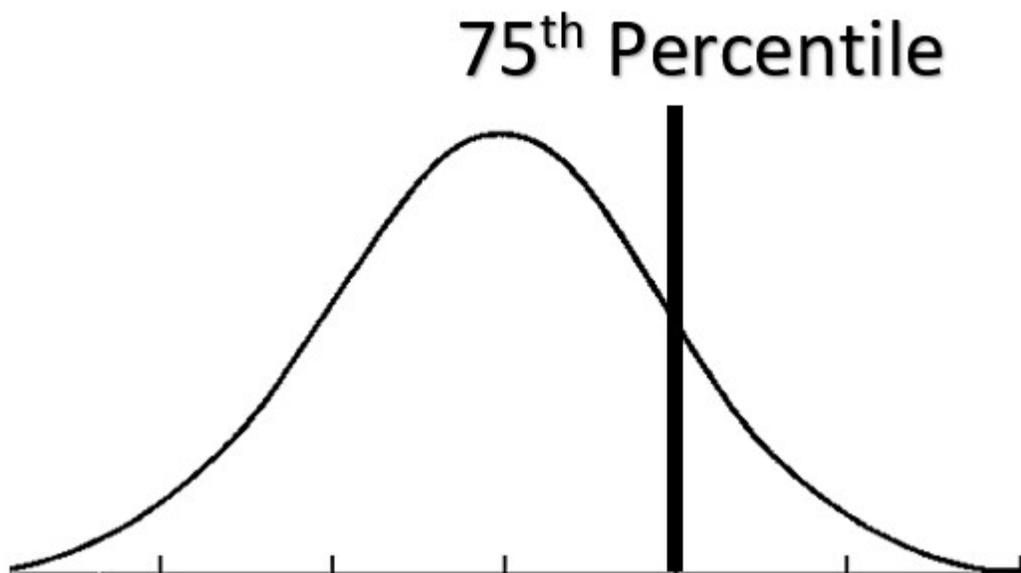
How to be entered in a drawing for a \$100 gift card:

The computer will keep track of how many points you have earned over all of the 10 collections and throughout all of the rounds.

After each round of the game, the computer will let you know where you stand compared to other historical past performers at that round of the game.

However, it is your end score after all of the rounds that will determine whether or not you are in a drawing to win the gift card. You will not be told when you are in the last round.

In order to be in a random drawing to win the \$100 gift card, you need to be in the 75th percentile of historical past performances at the end of all of the rounds.



Appendix B

Goal pursuit strategies scale (GPSS)

Please move the slider to the phase which was most representative of your most recent game experience

GPb1 During the last round of the game I was very focused on....

Not
getting
a
bomb

Getting
as
many
points
as
possible

1 2 3 4 5 6 7

Click and drag the slider to respond ()



GPb2 During the last round of the game...

I
anticipated
I would be
lucky
while
making
decisions

I worried
I would
be
unlucky
while
making
decisions

1 2 3 4 5 6 7

Click and drag the slider to respond ()



GPb3 During the last round of the game I focused on strategies that would propel me...

toward
getting
as
many
points
as
possible

away
from
getting
a
bomb

1 2 3 4 5 6 7

Click and drag the slider to respond ()



GPb4 During the last round of the game...

I went
with
my gut

I
thought
critically

1 2 3 4 5 6 7

Click and drag the slider to respond ()



GPb5 During the last round of the game...

I
relied
on
reason

I relied
on
intuition

1 2 3 4 5 6 7

Click and drag the slider to respond ()



Appendix C

Regulatory Focus Questionnaire (RFQ; Higgins et al. 2001)

This set of questions asks you HOW FREQUENTLY specific events actually occur or have occurred in your life. Please indicate your answer to each question from 1 (never or seldom) 2 3 4 5 (very often)

1. Compared to most people, are you typically unable to get what you want out of life?
2. Do you often do well at different things that you try?
3. Growing up, would you ever “cross the line” by doing things that your parents would not tolerate?
4. Not being careful enough has gotten me into trouble at times.
5. How often have you accomplished things that got you "psyched" to work even harder?
6. When it comes to achieving things that are important to me, I find that I don't perform as well as I ideally would like to do.
7. Did you get on your parents' nerves often when you were growing up?
8. I feel like I have made progress toward being successful in my life.
9. How often did you obey rules and regulations that were established by your parents?
10. I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them.
11. Growing up, did you ever act in ways that your parents thought were objectionable?

RFQ Scoring Key:

$$\text{Promotion} = [(6 - Q1) + Q3 + Q7 + (6 - Q9) + Q10 + (6 - Q11)] / 6$$

$$\text{Prevention} = [(6 - Q2) + (6 - Q4) + Q5 + (6 - Q6) + (6 - Q8)] / 5$$

$$\text{RF} = \text{promotion} - \text{prevention}$$