Professional Skills and Abilities Mindsets as a Predictor of Self-Regulation Following

Work-Related Failure

Lena Jansen

S4275365

Department of Psychology, University of Groningen

PSB3E-BT15: Bachelor Thesis

Group number 17

Supervisor: Teodora I. Heihal

Second evaluator: Dr. Samantha P. Adams

In collaboration with: Katariina Pelho, Julia R. Linneman, Julia Michalewski, Josine Akkermans,

and Merlin Dirks.

February 12, 2023

Abstract

Implicit theories, a widely researched framework that has been applied to various achievement domains, has recently found a new application in the professional skills and abilities mindsets in the workplace. To broaden the current little body of research, the present study aimed to investigate a hypothesized difference between growth and fixed professional skills and abilities mindsets on negative affect following work-related failure feedback (H1). It was furthermore examined whether self-compassion acts as a moderator in this relationship (H2). To test our hypotheses, a sample of $n = 73$ participants from different occupational backgrounds was gathered through convenience sampling. The online study consisted of a mindset manipulation, an emotional-understanding and a pattern-finding task, and a questionnaire assessing post-feedback negative affect and self-compassion. The negative feedback provided after each task was standardized, irrespective of actual performance. Results indicate statistically significant group differences in the experience of negative affect following failure feedback; the effects however are reversed, and growth mindsets predicted more negative affect. Thus, our hypothesis is not supported. Similarly, self-compassion was not found to have a statistically significant interaction effect with mindset; however, self-compassion alone was a significant predictor of negative affect. Our findings indicate that more refined and field-specific research is needed in this emerging field of study in order to arrive at reliable and meaningful conclusions. Future research might focus on developing or integrating existing growth mindset and self-compassion interventions targeted at employees faced with setbacks in the workplace.

Keywords: implicit theories, professional skills and abilities, failure, self-regulation, self-compassion

Professional Skills and Abilities Mindsets as a Predictor of Self-Regulation Following

Work-Related Failure

Ever-changing technology and organizational structures pose a challenge for a majority of employees and organizations; and to be able to stay innovative and creative, organizations demand their employees to constantly develop their skills and adapt to new working procedures (Schmitt & Scheibe, 2022; Han & Stieha, 2020). In light of these demands that are part of today's world of work, failure is nearly unavoidable, and although such setbacks are a common work experience, they often result in negative emotions or diminished motivation in employees (Song et al., 2020). However, even though the experience of negative emotions after failure is a crucial part of the self-regulatory process and therefore unavoidable, it has been found that individuals differ in their actions following failure, and while some quit, others continue to approach their goal (Babij et al., 2020). Thus, the aim of the current paper is to propose a potential explanation for individual differences in reaction to work-related failure.

As such, a concept that has received particular attention in both the media and science to explain such differences among self-regulatory processes following failure is the social-cognitive perspective of implicit theories (Dweck & Leggett, 1988; Babij et al., 2020). The framework describes how individuals differ and accordingly assign meaning to the world around them depending on their implicit beliefs about the malleability of human attributes and abilities, and has been utilized to explain different self-regulatory strategies, such as negative emotions or success expectations, that have been adopted after encountering challenges or obstacles (Molden & Dweck, 2006; Babij et al., 2020; Burnette et al., 2013). However, despite its possibly high utility for organizations that aim to equip their employees with development-oriented beliefs that make them more resilient to failure, research applying implicit theories and self-regulation to the domain of work is sparse, as most research on implicit theories is focused on academia (see

Burnette et al., 2013 for meta-analysis). Hence, this paper sets out to explore the relationship between professional skills and abilities mindsets and the self-regulatory process of negative emotions following work-related failure. It will furthermore be investigated whether self-compassion functions as a moderator in this relationship.

The SOMA Model

A theoretical framework that integrates both implicit theories and self-regulatory processes is the setting/operating/monitoring/achievement (SOMA) model, introduced by Burnette et al. (2013) and based on a meta-analytical review. The SOMA model is based on the assumption that implicit beliefs about the malleability of human abilities influence self-regulation, which in turn determines self-regulatory outcomes, such as achievement (Burnette et al., 2013). As adapted from the theory of self-control introduced by Carver and Scheier (1998), the SOMA model structures self-regulation into the three main stages "goal setting", "goal operating", and "goal monitoring"; each stage links entity and incremental theories to condition-specific self-regulatory outcomes that later influence achievement (see Burnette et al., 2013, for more detail).

The self-regulatory stage of goal monitoring concerns the observation of the progress, and moreover functions to identify additional actions needed to achieve the desired goal. To illustrate this mechanism, the SOMA model defines monitoring as the distance from the desired end state in terms of both concrete progress and pace of progress (Carver & Scheier, 1998). This process of goal monitoring, or rather the detection of a discrepancy between an individual's current progress and their desired outcome, likely evokes an affective response, which in turn impacts goal achievement. The SOMA model captures this affective response in the dependent variables "negative emotions" and "success expectations" (Burnette et al., 2013).

The current paper places its focus directly on the phase of goal monitoring for the

following two reasons. The SOMA model defines goal setting as the identification of an individual's aspired outcome, while goal operating describes the actions an individual undertakes to achieve their goal. Goal monitoring, however, is the level of discrepancy confrontation, that is the realization of a needed change in goal-directed behavior when progress thus far turns out to be insufficient (Burnette et al., 2013). As prior research suggests, the recognition of and acting upon such needed change is closely related to the negative affect an individual experiences depending on their belief about the malleability of their resources required for this change (Babij et al., 2020). Thus, the stage of goal monitoring should be of particular relevance when an individual is provided with negative failure feedback that implies such needed change.

However, Burnette's et al. (2013) "ego threats", which can be conceptualized as any negatively connoted implication about the self and therefore include failure, only held moderating effects for the self-regulatory stages "goal setting" and "goal operating", but not for "goal monitoring" (Burnette et al., 2013). It is therefore crucial to further investigate and understand the role setbacks at work play in the relationship between implicit theories and negative emotions. Findings would have important implications that might be beneficial to facilitate adaptive goal achievement strategies in employees that are faced with setbacks.

Implicit Theories and Professional Skills and Abilities

The framework of implicit theories is based on the assumption that individuals differ in their beliefs about the nature of fundamental human attributes such as intelligence, personality or abilities (Dweck & Leggett, 1988; Molden & Dweck, 2006; Sisk et al., 2018). Research on implicit theories emphasizes two main constructs to explain the way in which individuals structure those beliefs: entity and incremental theories (Burnette et al., 2013). As such, while an entity theorist thinks of their attributes as fixed and relatively stable (i.e., fixed mindset), incremental theorists view their attributes as rather dynamic, malleable, and changeable through

their own effort (i.e., growth mindset; Molden & Dweck, 2006; Sisk et al., 2018). It is however important to notice that mindsets are found to be domain specific; in other words, individuals can hold different mindsets in different domains (Babij et al., 2020).

The idea of implicit theories originally stems from early work on intelligence and was utilized to explain individual differences in both goal pursuit and attribution of performance to different internal factors (Dweck & Leggett, 1988; Hong et al., 1999). Since then, however, the framework of implicit theories has been applied to various achievement domains, such as athletics or weight management (Burnette et al., 2013). Likewise, by building on the framework of implicit theories, Schmitt and Scheibe (2022) introduce a new, yet unexplored field of mindset application, that is professional skills and abilities. In the light of ever-changing work procedures that demand high career adaptability among employees, their aim was to explore and validate implicit theories as a possible indicator of engagement with such career-related tasks and challenges. Hence, according to implicit theories, an individual with a growth mindset would think of their professional skills and abilities as changeable and developable, while an individual with a fixed mindset would view their professional skills and abilities as stable and rather unchangeable (Schmitt & Scheibe, 2022). In other words, career adaptability and adaptive behavioral responses to setbacks in the workplace would depend on an individual's belief about the malleability of their professional skills and abilities, such that a growth professional skills and abilities mindset would predict more adaptive responses to such setbacks compared to fixed mindsets (Schmitt & Scheibe, 2022).

Self-Regulation, Implicit Theories, and Failure

Among the various contexts implicit theories have been applied to, self-regulatory processes seem to be a prominent field of interest (Babij et al., 2019). As such, research emphasizes the interconnection between lay beliefs (i.e., implicit theories) and the meaning an

individual ascribes to negative events (Molden & Dweck, 2006). This interpretation of such negative events in turn influences the self-regulatory processes that take place accordingly, and thereby determine whether an individual adopts either adaptive or maladaptive problem-solving strategies (El-Alayli & Baumgardner, 2003).

In particular, failure, which can be defined as an unacceptable disparity between the states of actual and aspired performance or outcome (Cannon & Edmondson, 2005), has been found to be related to differing emotional and motivational responses depending on the implicit theory an individual holds, such that - in light of failure - some individuals continue to approach their goal, while others tend to give up (Song et al., 2020). In other words, although the experience of negative emotions after encountering negative events, such as failure, are a natural and unavoidable part of the self-regulatory process, individuals differ in their responses to such setbacks. Thus, implicit theories have been found to determine the self-regulatory strategies an individual adopts after encountering setbacks that indicate a discrepancy between actual and desired goal outcome (Burnette et al., 2013).

In essence, and likewise captured by the SOMA model (Burnette et al., 2013), incremental and entity theorists differ in their approach to goal-pursuit, which in turn influences their attribution of and proceedings after failure (El-Alayli & Baumgardner, 2003). For instance, incremental theorists tend to set learning-oriented goals, thereby striving to achieve mastery of new skills and develop their abilities (Song et al., 2020). When faced with failure, incremental theorists tend to attribute this failure to unstable factors, such as lack of effort rather than lack of ability, which allows them to view the situation as an opportunity for growth and development (Hong et al., 1999). Accordingly, mastery-oriented strategies are adopted to face the challenge (El-Alayli & Baumgardner, 2003); these for instance involve increased practice time (Burnette et al., 2013), constructive self-instruction and optimism (El-Alayli & Baumgardner, 2003).

In contrast, entity theorists likely set performance-oriented goals, trying to prove their ability to self and others (El-Alayli & Baumgardner, 2003). Since they view their skills and abilities as fixed, entity theorists are especially concerned with proving their competence and avoiding failure, as it would demonstrate insufficient ability (Hong et al., 1999; Burnette et al., 2013). Through the attribution of failure to stable and unchangeable factors, such as incompetence rather than lack of effort, entity theorists tend to adopt helpless-oriented strategies (Hong et al., 1999). These not only describe the justification that lacking abilities are out of an individual's control (Burnette et al., 2013), but moreover include behaviors such as self-handicapping and avoidance (Babij et al., 2020).

Even though a broad body of research supports the idea that self-regulatory strategies at least partly depend on the mindset an individual holds, the findings remain ambiguous considering null or even reversed-effect-findings in other studies (Burnette et al., 2013). To illustrate, a recent meta-analysis by Sisk et al. (2018) found inconsistent effect sizes, with predominantly small to null effects for the relation between mindsets and achievement. Considering these somehow contradicting findings, it is crucial to further investigate the actual impact mindset has on self-regulation and accordingly achievement. Integrated into the rationale of the current paper, it is especially important to understand the mechanisms that lie behind an adaptive integration of work-related failure feedback into novel situations, and thereby focus on how this adaptive integration is related to an affective response (i.e., negative emotions) depending on an individual's mindset.

Self-Compassion and Failure

A broad variety of research has been concerned with identifying factors that contribute to psychological health and well-being, adaptive coping and resilience in individuals that are faced with negative life events (Leary et al., 2007). Within this breadth, a concept that has received

recent attention is self-compassion (Breines & Chen, 2013); adapted from Buddhist philosophy and first introduced to Western psychology by Neff (2003). The concept of self-compassion captures an open-minded, non-judgmental attitude towards oneself following a negative life event (Neff et al., 2005), and can be divided into three core components: (a) self-kindness, or being kind and understanding to one's negative aspects or struggles; (b) common humanity, or understanding one's struggles as a common human experience; and (c) mindfulness, or recognizing and accepting one's pain in a non-judgmental manner (Breines & Chen, 2013; Marshall et al., 2015).

Self-compassion has been found to be related to various positive outcomes including psychological and social functioning (Breines & Chen, 2013), the experience of less negative emotions following negative life events (Leary et al., 2007), less negative self-judgement (Marshall et al., 2015), or higher self-efficacy (Chow & Hui, 2021). Particularly the study done by Neff et al. (2005) found self-compassion to function as a moderator between academic achievement goals and academic failure. The researchers found self-compassion to be positively related to setting learning-oriented goals; likewise self-compassion was negatively related to setting performance-oriented goals (Neff et al., 2005). Furthermore, self-compassion seemed to buffer against fear of failure (Neff et al., 2005), which is likely connected to the open-minded, non-judgmental attitude self-compassionate individuals have internalized.

It is noteworthy that both implicit theories and self-compassion have been linked to goal pursuit (Burnette et al., 2013; Neff et al., 2005), however, up until now a possible link between those two concepts has not yet been investigated. Furthermore, research on self-compassion clearly points out its benefits for dealing with failure, as higher self-compassion is not only linked to lesser fear of failure, but moreover less negative self-judgement when faced with failure (Neff et al., 2005; Marshall et al., 2015). Similarly, incremental theorists, compared to entity theorists,

ascribe failure to unstable and malleable factors, which allows them to experience fewer negative emotions and to approach the situation utilizing active problem-solving strategies (El-Alayli & Baumgardner, 2003). It can therefore be hypothesized that self-compassion interacts with an individual's belief about the malleability of their skills and abilities; in other words, self-compassion might act as a moderator in the relationship between implicit theories and the experience of negative emotions following failure. Thus, higher self-compassion would buffer against the experience of negative emotions for both entity and incremental theorists; likewise low self-compassion would be linked to more negative affect.

Aim of Current Research

The present research sets out to explore whether the activation of a certain professional skills and abilities mindset (growth versus fixed) has an impact on an individual's self-regulatory processes following failure feedback. Participants will be randomly assigned to either a growth or a fixed mindset condition; each mindset will be primed by utilizing condition specific vignettes that have been adapted from prior research. To simulate failure, each participant will receive standardized negative failure feedback after completing a set of human resources related tasks.

Based on prior research, we hypothesize that there exist group differences in the experience of negative affect following failure feedback depending on an individual's mindset (H1); that is, an individual with a growth professional skills and abilities mindset would experience less negative affect following failure feedback compared to an individual that holds a fixed professional skills and abilities mindset. We moreover hypothesize to find an interaction effect of self-compassion and mindset; in other words, the relationship between a professional skills and abilities mindset and the experience of negative emotions after failure feedback is moderated by an individual's self-compassion (H2; see figure 1).

Figure 1

Moderation Analysis Model
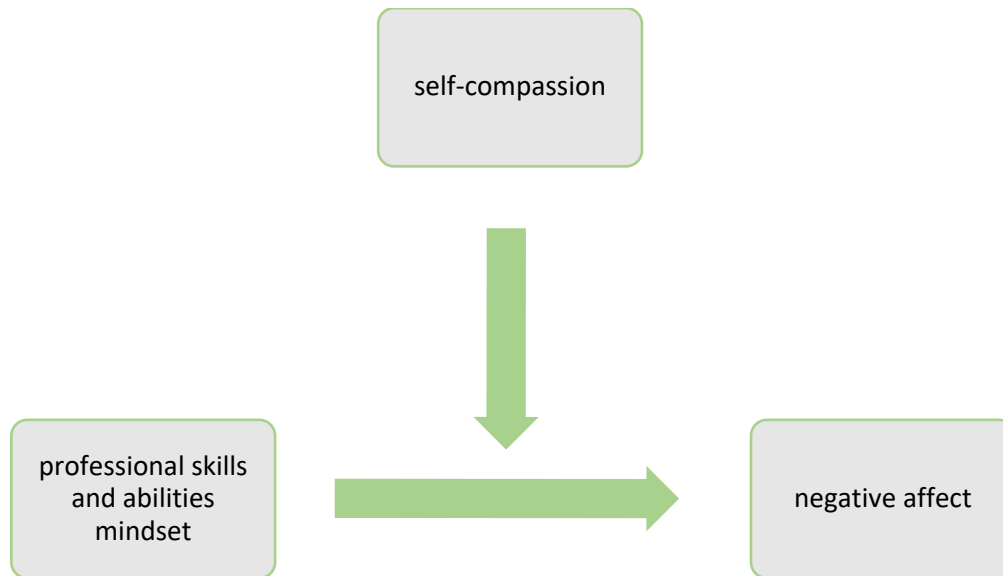
Note. Moderation analysis model with independent variable professional skills and abilities mindset, dependent variable negative affect, and moderator self-compassion.

Method

Participants

By utilizing convenience sampling, we gathered a sample of participants that were referred to by psychology students through word-of-mouth as part of their bachelor thesis project. The participants did not receive compensation for their participation in the study. The study received a total of 234 responses, of which around 140 were incomplete. The complete sample consisted of 88 employees from various occupational backgrounds, with the only inclusion criteria being that their current working hours exceed at least 20 hours per week. We also checked that our participants did not guess the purpose of our study.

Data from 15 participants were removed because they did not give consent to use the data, did not fill in the complete survey, or exclusively stated that they guessed the true purpose of the

study from the get-go. Five Dutch-speaking participants reported that they have a zero-hour work contract, but we decided to keep these cases in the analysis as zero-hour contracts are common in the Netherlands. After all exclusions, the data of the remaining 73 participants were used for the statistical analysis. Table 1 offers specific demographic information of all participants.

Assessment and Measures

Negative Affect Measure (Betella & Verschure, 2016; Harley et al., 2019; Pekrun et al., 2011)

To assess negative affect after receiving negative feedback, a combination of multiple scales and tools was used. The Achievement Emotion Questionnaire (AEQ) is a self-report

Table 1

Gender, Language, and Age of Participants

Baseline Characteristics	*n*	*%*	*M*	*SD*
Gender				
Male	22	30.1		
Female	49	67.1		
Other	2	2.8		
Language				
English	27	37.0		
Dutch	29	39.7		
German	17	23.3		
Age	73		40.8	14.673
Total	73			

measure of achievement emotions in academic settings and contains 24 items, which can be scored on a 5-point Likert scale ranging from 1 = "strongly disagree" to 5 = "strongly agree". In our study, only four items (anger, shame, relief, pride) were used. The scale offers good psychometric properties with a reliability of α = .75 (Pekrun et al., 2011). The integrated model of emotion regulation in achievement situations (ERAS) gives insight into how emotion regulation strategies are impacted by achievement situations and emotions with varying patterns of appraisal (Harley et al., 2019). Three applicable items were used here, measuring negative emotions typically experienced retrospectively after failure (anger, shame, disappointment). Additionally, three positive emotions typically experienced retrospectively after success (relief, pride, joy) were included as distractors (Harley et al., 2019; Pekrun et al., 2011). Instead of a Likert scale however, affective sliders ranging from 0 to 100 were used as a self-assessment tool to indicate each previously listed item (Betella & Verschure, 2016). In our study, the psychometric properties were good with a Cronbach's alpha of α = .81.

State Self-Compassion Scale Short Form (SSCS-S; Neff et al., 2021)

The State Self-Compassion Scale Short Form is a self-report measure that assesses an individual's global level of self-compassion. The measure is composed of six items that can be scored on a 5-point Likert scale ranging from 1 = "Not at all true for me" to 5 = "Very true for me"; the six items likewise resemble the six core components of self-compassion (self-kindness, common humanity, mindfulness, self-judgement, isolation and overidentification). Items include "I'm giving myself the caring and tenderness I need" (self-kindness), and "I feel intolerant and impatient toward myself" (self-judgement). The measure offers good psychometric properties with a reliability of α = .86 (Neff et al., 2021). In our study, the psychometric properties were satisfactory with a Cronbach's alpha of α = .76.

Design and Procedure

In order to test our hypotheses, an experiment was conducted. Thereby, the two experimental conditions represent the two levels of our independent variable professional skills and abilities mindset. Each participant was randomly assigned to either the growth mindset ($n = 40$) or the fixed mindset condition ($n = 33$). The data was gathered using a single study, which took participants around 25 minutes to complete. Before the study was conducted it was approved by the Ethics Committee of the University of Groningen.

Before the study began, all participants were informed that participation was completely voluntary and that they could quit the study at any time. Even after participation, there was an option for the participants to have all their data removed. Once the information about the study was given, participants filled in the informed consent form. In order to mask the true aim of the study, participants received a bogus explanation indicating our interest in examining individual differences and their accounting for differing work-related abilities throughout a recruitment task used in Human Resources departments across different companies. In reality, however, our aim was to investigate the relationship between professional skills and abilities mindsets and reaction to work-related threat of failure, provided through negative feedback. A comprehensive debriefing of the true purpose of the study was offered to all participants after they were finished with all tasks and questions. Participants were also given a voluntary 'mood restoration' video to watch to make sure that the deception in the study would not leave them with any negative feelings.

The study consisted of four parts: mindset manipulation, an emotional-understanding task, a pattern-finding task, and a brief questionnaire. Each task was followed by standardized negative feedback, irrespective of the participant's actual performance. In order to activate either the fixed or the growth professional skills and abilities mindset, participants were asked to read a vignette suggesting that work-related skills and abilities are either developable or relatively stable and

unchangeable. The vignettes were introduced to the participants as a memory task, indicating that they will later be tested on their memory of the main message of the text. In reality, however, there was no testing of memory, as the vignettes only served the purpose of activating either growth or fixed mindsets in our participants. Additionally, to further strengthen our mindset manipulation, participants were asked to fill out condition-specific items from the Professional Skills and Abilities Mindset Scale (Schmitt & Scheibe, 2022), a self-report measure that assesses the two core components of professional skills and abilities growth and fixed mindsets.

Following the mindset manipulation, the Occupational-Propensity Task (OPT) was introduced. The OPT, as adapted from Shafir et al. (2017), is a computerized task that is composed of three successive tasks assessing wise reasoning, fluid intelligence, and emotional intelligence. The current study only utilized the two latter mentioned tasks. In particular, the first task assessing emotional intelligence required participants to watch a 2-minute video of a person recounting an emotional experience, thereby being instructed to pay close attention to the protagonist's facial expressions. In order to ensure complete focus of the participants on the ambiguous situation, there was no sound available and the participants were not allowed to continue until they finished watching the entire video. Subsequently, participants were asked to indicate the emotions they believed had been portrayed in the video clip. In order to indicate the intensity of each emotion, a questionnaire that lists 14 different emotions was provided; each emotion can be rated on a 5-point Likert scale ranging from 1 = "not at all" to 5 = "extremely". Their actual performance was not recorded, however, after finishing the task, and unrelated to their actual performance, participants were provided with automated negative feedback indicating a below-average performance simulating failure. This feedback solely served the purpose of evoking an affective response in our participants in order to investigate our hypothesis.

Afterward, partcipants completed the second part of the OPT, which assesses fluid

intelligence through a pattern-finding task. Therefore, participants were presented with a picture that was missing a piece, and accordingly had to indicate which of the presented six options completes the picture. This task was presented in a total of ten different trials; each trial had to be completed within a given time frame of 16 seconds. Again, their performance was not actually being recorded. After completion of the task, participants once again received standardized, bogus negative feedback indicating below-average performance. Subsequently, and under consideration of the negative feedback that had just been provided, participants were asked to indicate both their negative affect and their success expectation. Lastly, in order to assess our moderators, participants were asked to fill in both the Short Almost Perfect Scale (Rice et al., 2014) and the State Self-Compassion Scale Short Form (Neff et al., 2021).

After providing demographics, such as age, gender, country of residence, level of educational attainment and number of workhours specified in their contract, participants were asked to indicate their thoughts about the true purpose of our study. This question served the function of assessing possible demand characteristics that might have been present within our study. To restore mood, participants were offered the possibility to watch a collection of scenes from Pixar's 2015 film "Inside Out". At this point, participants were furthermore provided with an extensive debriefing, which included both the real purpose of our study and an explanation for our deception that was delivered through a bogus explanation at first. It was likewise clarified that the negative feedback each participant received solely served the function of investigating our hypothesis regarding mindset and reaction to negative feedback.

General Statistical Procedure

A one-way ANOVA will be performed in order to determine whether there is a statistically significant difference between growth and fixed professional skills and abilities mindset on negative affect (H1). Thereby, the two experimental groups the participants were

randomly assigned to represent our independent variable mindset, while group differences will be examined in our dependent variable negative affect. Subsequently, a one-way ANCOVA will be carried out to examine whether there exists a hypothesized interaction effect between our moderator self-compassion and our independent variable mindset (H2). Therefore, the product term between self-compassion and mindset will be analyzed.

Prior to our analysis, an assumption check will be carried out to determine whether the performance of both an ANOVA and ANCOVA on our data is appropriate. Four main assumptions will be checked, namely normality, homoscedasticity, homogeneity of regression slopes, and linearity between depend variable and moderator.

Results

The data analysis was subdivided into a preliminary analysis, where an assumption check was carried out, and the main analysis, where each of our two hypotheses were tested through different analyses of variances. In order to test our hypothesis that there exist group differences in the experience of negative affect following work-related failure feedback depending on our two experimental conditions growth and fixed mindset (H1), a one-way ANOVA was carried out. Subsequently, to examine a hypothesized interaction effect between mindset and self-compassion (H2), a one-way ANCOVA was carried out, where self-compassion was treated as a continuous moderator. No additional data was removed, as no extreme outliers were present, and as mentioned in the method section, the main data-reduction was done prior to the analysis.

Descriptive Statistics and Correlations

As a first step in our analysis, descriptive statistics and correlations were obtained for each variable respectively in order to explore whether those would be in line with our predicted direction. Indeed, in line with our prediction, there exists a moderate to large negative correlation ($r = - .462$) between self-compassion and negative affect. Likewise, as can be seen in table 2, the

unadjusted means before controlling for self-compassion seem to differ between growth and fixed mindset, however in the opposite direction as expected. Those findings will be explored further in the following steps.

Assumption Check for ANCOVA

Next to exploring descriptive statistics and correlations, an assumption check was carried out in order to determine the appropriateness of utilizing an ANCOVA for our data. To test the assumption of normality, a Shapiro-Wilk test was performed, which showed no statistically significant deviation from normality for both negative affect ($W = .978$, $p = .228$) and self-compassion ($W = .973$, $p = .111$). To test the assumption of homoscedasticity, we ran a Levene's test, which showed approximately equal variances for negative affect in both the growth and fixed mindset group ($F(1, 71) = 1.452$, $p = .232$). Homogeneity of regression slopes was tested by obtaining the interaction term for mindset and self-compassion; findings will be discussed later in terms of our hypothesis that self-compassion acts as a continuous moderator in the relationship between mindset and negative affect (H2). The assumption of linearity between the covariate and the dependent variable was tested through visual inspection; the assumption seems to be approximately met. Therefore, it was decided to continue analyzing our data through an

Table 2

Descriptive Statistics

Mindset	*M*	*SD*	*n*
Fixed	32,3838	21,90571	33
Growth	44,2500	21,30256	40
Total	38,8858	22,23604	73

ANCOVA, as no major violation of any assumption was found.

Main Analysis

To test our hypothesis of group differences in the experience of negative affect following failure feedback depending on an individual's mindset (H1), a univariate ANCOVA was carried out. As can be seen in table 3, the estimated marginal means for each mindset condition after controlling for self-compassion seem to differ; however, in the opposite direction as predicted. In fact, there can be found a statistically significant mean difference of -12.749 (p = .005) between growth and fixed mindset. As can be seen in table 4, the main effect of mindset is significant when the effects of the covariate are partialed out ($F(1, 71)$ = 5.469, p = .022). However, even though there have been found to be statistically significant group differences, the effect of the group difference is opposite to our prediction, thereby not supporting our hypothesis.

To test our hypothesis that self-compassion moderates the relationship between mindset and negative affect (H2), an interaction term of mindset and self-compassion was added to the ANCOVA model. As can be seen in table 5, there cannot be found a statistically significant

Table 3

Estimated Marginal Means

Dependent Variable: Negative Affect Combined

Mindset	M	SE	95% CI	
			LB	UB
Fixed	32,146[a]	3,324	25,515	38,778
Growth	44,500[a]	3,019	38,478	50,522

a. Covariates appearing in the model are evaluated at the following values: Self-Compassion = 4,2489.

Table 4

Test of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	p
Corrected Model	2546,077[a]	1	2546,077	5,469	,022
Intercept	106192,105	1	106192,105	228,103	<,001
Mindset	2546,077	1	2546,077	5,469	,022
Error	33053,694	71	465,545		
Total	145983,722	73			
Corrected Total	35599,771	72			

a. R Squared = ,072 (Adjusted R Squared = ,058)

interaction effect of mindset and self-compassion ($F(1, 69) = .284$, $p = .596$). However, looking at the covariate itself, it can be seen that the main effect of self-compassion is statistically significant ($F(1, 69) = 19.368$, $p < .001$). Nevertheless, considering the found non-significant interaction term of mindset and self-compassion, our second hypothesis is not supported either by our data.

Discussion

The aim of our study was to investigate the relation between professional skills and abilities mindsets and the self-regulatory process of negative emotions following work-related failure. We hypothesized to find group differences in the experience of negative affect following failure feedback depending on an individual's mindset (H1); in particular it was assumed that an individual with a growth professional skills and abilities mindset would experience less negative affect following failure feedback compared to an individual that holds a fixed professional skills and abilities mindset. We furthermore hypothesized to find an interaction effect of self-

Table 5

Test of Between-Subjects

Source	Type III Sum of Squares	df	Mean Square	F	p
Corrected Model	10459,605[a]	3	3486,535	9,569	<,001
Intercept	20233,245	1	20233,245	55,532	<,001
Self-compassion	7056,560	1	7056,560	19,368	<,001
Mindset	384,740	1	384,740	1,056	,308
Mindset * Self-compassion	103,544	1	103,544	,284	,596
Error	25140,166	69	364,350		
Total	145983,722	73			
Corrected Total	35599,771	72			

a. R Squared = ,294 (Adjusted R Squared = ,263)

compassion and mindset; that is, the relationship between a professional skills and abilities mindset and the experience of negative emotions following failure feedback would be moderated by an individual's self-compassion (H2).

Implicit Theories (H1)

Our data indeed demonstrate significant group differences in the experience of negative affect following work-related negative feedback; however, growth professional skills and abilities mindsets predicted more negative affect compared to fixed professional skills and abilities mindsets. Thus, our hypothesis is not supported by our data. However, although those reversed effect findings are in clear contrast to our expectation, they are not astonishing per se. In line with prior research, and mentioned as a main reason for conducting the current study, findings linking

implicit theories and self-regulation remain somehow ambiguous considering null- or reversed-effect findings (Burnette et al., 2013; Sisk et al., 2018).

A possible explanation for our reversed-effect findings can be found in the person-environment fit hypothesis that posits that certain environments tend to fit the characteristics of an individual better than others do. Accordingly, if an individual matches well with an environment, adaptive responses, such as satisfaction and high performance, will be observed; if the person-environment fit however does not match well, maladaptive responses, such as low performance and dissatisfaction, are likely expressed (Pervin, 1968). Under consideration of the person-environment fit hypothesis, El-Alayli & Baumgardner (2003) proposed that the motivational climate must match the goal either entity or incremental theorists tend to approach in order to facilitate adaptive motivational responses. Their findings imply that entity theorist tend to thrive in a performance-oriented climate; and moreover, when faced with failure, individuals are more likely to give up given the absence of a match between the motivational climate and goals (El-Alayli & Baumgardner, 2003).

This has important implications for our reversed-effect findings. In our study, the occupational-propensity task was introduced as assessment of ability that would later be compared to prior participant's performance, which certainly created a performance-oriented climate. It is hardly surprising, therefore, that the missing person-environment fit for incremental theorists, and the matching person-environment fit for entity theorists contributed to our reversed-effect findings.

Moreover, the feedback that was provided in our study was solely negative; neither did we provide any suggestions for possible improvement, nor was there given an opportunity to learn from mistakes. This missing opportunity likely added to the already missing person-environment fit for incremental theorists. As such, research suggests the importance of constructive feedback,

that is feedback that acknowledges failure or poor performance in a manner that is encouraging and kind, allowing for task-specific improvement (Tortoriello & Hart, 2019). In fact, incremental theorists view setbacks and failure as important opportunities to learn from mistakes and thereby develop their abilities (Cutumisu, 2019). If this opportunity for learning and development however is absent, and no constructive feedback is being provided, it is not surprising to find incremental theorists to be left discouraged and dissatisfied, reflected in higher negative affect scores.

Indeed, the person-environment fit for entity theorists matched well, and in light of failure should have resulted in highly negative responses. It must however be considered that a main motivational drive for entity theorists is to gain approving judgements of their abilities and avoid unfavorable ones by others (Hong et al., 1999); in other words, entity theorists want to prove their skills and abilities to other individuals. Our study however was conducted in each participant's private environment, anonymous and without public comparison of performance. It can thus be hypothesized that the environment in which the study was conducted contributed to less negative affect in entity theorists, as participants did not feel the threat to be directly and negatively evaluated by and compared to others. Thus, a more controlled environment, such as offered by laboratory research, might be needed in order to arrive at more reliable results.

Self-Compassion (H2)

Our findings did not demonstrate a statistically significant interaction effect between our independent variable mindset and our moderator self-compassion; however, the ANCOVA model reveals self-compassion to be a statistically significant predictor of our dependent variable negative affect. The finding that self-compassion held large significant effects on negative affect is not surprising, considering self-compassion interventions being integrated into third-wave cognitive behavioral therapy emotion-based interventions in order to improve clinical outcomes

(Stevens, 2022). Meanwhile, mindset interventions have been found to remain ambiguous, with recent large-sample studies demonstrating non-significant effects for the relation between mindset and failure (Li & Bates, 2019). Thus, our findings suggest that self-compassion interventions, distinct from mindset interventions, might offer promising results for employees dealing with setback.

A growing body of evidence supports the effectiveness of self-compassion interventions for various different target populations, amongst them being a range of clinical samples, as well as the non-clinical population (Wakelin et al., 2022). For instance, a recent meta-analysis found self-compassion interventions to significantly increase self-compassion scores across a total of 27 randomized controlled trials (Ferrari et al., 2019), offering large effect sizes for ruminative thought patterns. Similarly, self-compassion interventions have been designed to target self-criticism, that is negative self-evaluation co-occurring with negative emotions, and have been found to hold medium effect sizes in the reduction of such self-criticism (Wakelin et al., 2022).

Self-compassion, compared to other emotion-based interventions, is believed to offer a unique way of responding to negative life experiences, such that it changes how individuals respond to their negative emotions (Stevens, 2022). In particular, the focus of self-compassion lies on experiencing emotions in a kind and understanding manner, absent of critical self-judgement (Neff, 2003). Furthermore, research indicates that the improvement of tolerance to, combined with a decrease of over-identification with upsetting negative emotions, make self-compassion a particularly useful target for therapeutic interventions (Neff, 2003; Stevens, 2022).

Theoretical and Practical Implications

Our findings offer some important implications. Although growth mindset interventions have been found to hold beneficial outcomes in a number of different applications, such that they produced higher academic achievement or well-being (Burnette et al., 2022), our reversed-effect

findings contribute to existing research that questions the actual impact and reliability of mindset interventions (Sisk et al., 2018). However, considering the current research to be one of the first to ever investigate professional skills and abilities mindsets in the workplace, our findings might need to be interpreted with caution, as more research would be needed to arrive at meaningful conclusions. Nevertheless, our findings contribute to prior research that suggest a need to create a person-environment fit that matches the motivational climate to the mindset-dependent goal an individual tends to approach in order to arrive at more reliable and unambiguous results (El-Alayli & Baumgardner, 2003). Our findings moreover imply that the feedback being provided might play an important role in facilitating adaptive self-regulatory responses in incremental theorists, such that it provides individuals with an opportunity to learn and improve on specific tasks (Tortoriello & Hart, 2019). To arrive at more meaningful conclusions about the suggested importance of constructive feedback, future research might investigate differences between constructive and negative feedback in the context of implicit theories in a two-by-two study design.

Our findings furthermore imply self-compassion interventions to be a possibly powerful tool in facilitating adaptive emotional and motivational responses in employees faced with setbacks. To illustrate, the Mindful Self-Compassion (MSC) program, a self-compassion intervention designed by Neff and Germer (2013), targets mainly non-clinical populations and aims to provide participants with resources that allow them to integrate self-compassion into their everyday life. Additionally, the MSC program is structured around weekly meetings over the course of 8 weeks, making it a rather short and cost-effective intervention (Neff & Germer, 2013). Future research might therefore be directed at investigating and integrating possible benefits of self-compassion interventions, such as the MSC program, for employees struggling with responding adaptively to work-related setbacks.

Limitations and Future Research

One of the main limitations in our study pertains to our mindset manipulation. Although we were able to effectively conceal the true aim of our study, and moreover, the utilized vignettes were adapted from prior research indicating them to be a reliable tool to achieve mindset manipulation (Lee et al., 2021), our data indicate that only the growth mindset manipulation turned out to be successful. To illustrate, participants assigned to the fixed mindset condition endorsed a tendency to answer items representing entity theories rather neutral, while answers given to items depicting incremental theories were endorsed more unambiguously by participants assigned to the growth mindset condition. In other words, it seems like participants resonated stronger with items depicting incremental than entity theories. Similar answer patterns have been observed in prior research (Hong et al., 1999). It could thus be reasoned that items depicting entity theories contain unfavorable information about the self that individuals are disinclined to agree to, and more importantly, that items illustrating incremental theories are likely considered to be socially desirable, making participants endorse those items more strongly.

Future research might therefore focus on investigating differences between a growth mindset manipulation and a control condition, rather than a fixed mindset manipulation. In fact, and in line with prior research, it is the growth mindset that has been found to hold beneficial outcomes for individuals, not the fixed mindset (Dweck & Leggett, 1988; Babij et al., 2020). Although the magnitude of mindset interventions still remains somehow ambiguous, such interventions indeed seem to hold considerable potential considering their successful and broadening application to a multitude of societal problem areas (Burnette et al., 2022). Hence, the focus of future research should be on developing more reliable and targeted growth mindset interventions in order to help individuals remain optimistic and development-oriented when faced with setbacks.

Another important shortcoming in our study pertains to the absent control over the field of work of our participants; there was not set any inclusion or exclusion criteria regarding a specific occupation a priori. Although the OPT has been adapted from prior research (Shafir et al., 2017) and seemed to produce reliable results, it can certainly be assumed that the absent match between occupation and content of OPT contributed to our ambiguous findings. Future research should therefore be directed at conducting more field specific research, that is, occupational propensity tasks should exemplify tasks that are encountered in the participant's specific occupation. It can be assumed that personally relevant and meaningful tasks likely lead to more negative affect, and more importantly to more significant and clear group differences, compared to tasks that endorse no personal relevance.

A third limitation in our study pertains to our sample size. Our two experimental conditions were indeed composed of approximately equal sub-samples of participants, which should have produced reliable results regarding group differences. Still, considering our sample size of $n = 73$ participants, it can be assumed that our study had insufficient statical power, which might have produced a type II error in our results. Future research might therefore try to replicate our study with a bigger sample, ensuring the generation of more reliable results.

Conclusion

Although our data do not offer support for any of our two hypotheses, there are still some important implications that can be taken away from the present research. The current study was one of the first to ever investigate professional skills and abilities mindsets in the workplace. Thus, this emerging field of interest would need more research to be able to arrive at reliable and meaningful conclusions. However, considering the successful implementation of mindset interventions in prior studies (e.g., Burnette et al., 2022), combined with their cost-effectiveness, we still belief such interventions to be a relevant tool to produce more development-oriented and

adaptive self-regulatory responses in individuals confronted with setback situations. Furthermore, our study contributes to the growing body of evidence that supports the relevance of self-compassion for various positive outcome variables; indicating self-compassion to act as a protective factor in failure contexts. Future research might therefore consider investigating self-compassion in more field specific research that is targeted at dealing with setbacks in the workplace.

References

Babij, A. D., Burnette, J. L., & Hoyt, C. L. (2020). Failing and feeling bad: How we think about experiencing negative emotions during setbacks. *Motivation and Emotion*, *44*(3), 436-452.https://doi.org/10.1007/s11031-019-09789-3

Betella, A., & Verschure, P. F. M. J. (2016). The Affective Slider: A Digital Self-Assessment Scale for the Measurement of Human Emotions. PLOS ONE, 11(2), e0148037. https://doi.org/10.1371/journal.pone.0148037

Breines, J. G., & Chen, S. (2013). Activating the inner caregiver: The role of support-giving schemas in increasing state self-compassion. *Journal of Experimental Social Psychology*, *49*(1), 58–64. https://doi.org/10.1016/j.jesp.2012.07.015

Burnette, J. L., Billingsley, J., & Hoyt, C. L. (2022). Harnessing growth mindsets to help individuals flourish. *Social and Personality Psychology Compass*, *16*(3). https://doi.org/10.1111/spc3.12657

Burnette, J. L., O'Boyle, E. H., VanEpps, E. M., Pollack, J. M., & Finkel, E. J. (2013). Mind-sets matter: A meta-analytic review of implicit theories and self-regulation. *Psychological Bulletin*, *139*(3), 655–701. https://doi.org/10.1037/a0029531

Cannon, M. D., & Edmondson, A. C. (2005). Failing to Learn and Learning to Fail (Intelligently): How Great Organizations Put Failure to Work to Innovate and Improve. *Long Range Planning: International Journal of Strategic Management*, *38*(3), 299–319. https://doi.org/10.1016/j.lrp.2005.04.005

Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behavior*. Cambridge University Press. https://doi.org/10.1017/CBO9781139174794

Chow, T. S., & Hui, C. M. (2021). How does trait self-compassion benefit self-control in daily

life? An experience sampling study. *Mindfulness*, *12*(1), 162–169.

https://doi.org/10.1007/s12671-020-01509-0

Cutumisu, M. (2019). The association between feedback-seeking and performance is moderated

by growth mindset in a digital assessment game. *Computers in Human Behavior*, *93*, 267–

278. https://doi.org/10.1016/j.chb.2018.12.026

Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and

personality. *Psychological Review*, *95*(2), 256–273. https://doi.org/10.1037/0033-

295X.95.2.256

El-Alayli, A., & Baumgardner, A. (2003). If at First You Don't Succeed,What Makes You Try,

Try Again? Effects of Implicit Theories and Ability Feedback in a Performance-Oriented

Climate. *Self and Identity*, *2*(2), 119–135. https://doi.org/10.1080/15298860309031

Ferrari, M., Hunt, C., Harrysunker, A., Abbott, M. J., Beath, A. P., & Einstein, D. A. (2019).

Self-compassion interventions and psychosocial outcomes: A meta-analysis of

RCTs. *Mindfulness*, *10*(8), 1455–1473. https://doi-org.proxy-ub.rug.nl/10.1007/s12671-

019-01134-6

Han, S. J., & Stieha, V. (2020). Growth mindset for human resource development: A scoping

review of the literature with recommended interventions. *Human Resource Development

Review*, *19*(3), 309–331. https://doi.org/10.1177/1534484320939739

Harley, J. M., Pekrun, R., Taxer, J. L., & Gross, J. J. (2019). Emotion Regulation in Achievement

Situations: An Integrated Model. Educational Psychologist, 54(2), 106–126.

https://doi.org/10.1080/00461520.2019.1587297

Hong, Y., Chiu, C., Dweck, C. S., Lin, D. M.-S., & Wan, W. (1999). Implicit theories,

attributions, and coping: A meaning system approach. *Journal of Personality and Social

Psychology*, *77*(3), 588–599. https://doi.org/10.1037/0022-3514.77.3.588

Leary, M. R., Tate, E. B., Adams, C. E., Batts Allen, A., & Hancock, J. (2007). Self-compassion

and reactions to unpleasant self-relevant events: The implications of treating oneself

kindly. *Journal of Personality and Social Psychology*, *92*(5), 887–904.

https://doi.org/10.1037/0022-3514.92.5.887

Lee, J. S., Keil, M., & Wong, K. F. E. (2021). When a growth mindset can backfire and cause

escalation of commitment to a troubled information technology project. *Information

Systems Journal*, *31*(1), 7–32. https://doi.org/10.1111/isj.12287

Li, Y., & Bates, T. C. (2019). You can't change your basic ability, but you work at things, and

that's how we get hard things done: Testing the role of growth mindset on response to

setbacks, educational attainment, and cognitive ability. *Journal of Experimental

Psychology: General*, *148*(9), 1640–1655. https://doi.org/10.1037/xge0000669

Marshall, S. L., Parker, P. D., Ciarrochi, J., Sahdra, B., Jackson, C. J., & Heaven, P. C. L. (2015).

Self-compassion protects against the negative effects of low self-esteem: A longitudinal

study in a large adolescent sample. *Personality and Individual Differences*, *74*, 116–121.

https://doi.org/10.1016/j.paid.2014.09.013

Molden, D. C., & Dweck, C. S. (2006). Finding "Meaning" in Psychology: A Lay Theories

Approach to Self-Regulation, Social Perception, and Social Development. *American

Psychologist*, *61*(3), 192–203. https://doi.org/10.1037/0003-066X.61.3.192

Neff, K. D. (2003). The development and validation of a scale to measure self-compassion. *Self

and Identity*, *2*(3), 223–250. https://doi.org/10.1080/15298860309027

Neff, K. D., & Germer, C. K. (2013). A pilot study and randomized controlled trial of the mindful

self-compassion program. *Journal of Clinical Psychology*, *69*(1), 28–44.

https://doi.org/10.1002/jclp.21923

Neff, K. D., Hsieh, Y.-P., & Dejitterat, K. (2005). Self-compassion, Achievement Goals, and

Coping with Academic Failure. *Self and Identity*, *4*(3), 263–287.

https://doi.org/10.1080/13576500444000317

Neff, K. D., Tóth-Király, I., Knox, M. C., Kuchar, A., & Davidson, O. (2021). The development

and validation of the state self-compassion scale (long- and short form). *Mindfulness*,

12(1), 121–140. https://doi.org/10.1007/s12671-020-01505-4

Pekrun, R., Goetz, T., Frenzel, A. C., Barchfeld, P., & Perry, R. P. (2011). Measuring emotions in

students' learning and performance: The Achievement Emotions Questionnaire (AEQ).

Contemporary Educational Psychology, 36(1), 36–48.

https://doi.org/https://doi.org/10.1016/j.cedpsych.2010.10.002

Pervin, L. A. (1968). Performance and satisfaction as a function of individual-environment

fit. *Psychological Bulletin*, *69*(1), 56–68. https://doi.org/10.1037/h0025271

Rice, K. G., Richardson, C. M. E., & Tueller, S. (2014). The Short Form of the Revised Almost

Perfect Scale. *Journal of Personality Assessment*, *96*(3), 368–379.

https://doi.org/10.1080/00223891.2013.838172

Schmitt, A., & Scheibe, S. (2022). Beliefs About the Malleability of Professional Skills and

Abilities: Development and Validation of a Scale. *Journal of Career Assessment,*

10690727221120367.

Shafir, R., Guarino, T., Lee, I. A., & Sheppes, G. (2017). Emotion regulation choice in an

evaluative context: the moderating role of self-esteem. Cognition and Emotion, 31(8),

1725–1732. https://doi.org/10.1080/02699931.2016.1252723

Sisk, V. F., Burgoyne, A. P., Sun, J., Butler, J. L., & Macnamara, B. N. (2018). To what extent

and under which circumstances are growth mind-sets important to academic achievement?

Two meta-analyses. *Psychological Science*, *29*(4), 549–571.

https://doi.org/10.1177/0956797617739704

Song, J., Kim, S., & Bong, M. (2020). Controllability attribution as a mediator in the effect of

    mindset on achievement goal adoption following failure. *Frontiers in Psychology*, *10*.

    https://doi.org/10.3389/fpsyg.2019.02943

Stevens, F. L. (2022). Emotion-based interventions for clinicians. *Journal of Contemporary*

    Psychotherapy: On the Cutting Edge of Modern Developments in Psychotherapy, *52*(4),

    329–336. https://doi.org/10.1007/s10879-022-09546-7

Tortoriello, G. K., & Hart, W. (2019). Trait interpersonal vulnerability attenuates beneficial

    effects of constructive criticism on failure responses. *British Journal of*

    Psychology, *110*(3), 594–613. https://doi.org/10.1111/bjop.12356

Wakelin, K. E., Perman, G., & Simonds, L. M. (2022). Effectiveness of self-compassion-related

    interventions for reducing self-criticism: A systematic review and meta-analysis. *Clinical*

    Psychology & Psychotherapy, *29*(1), 1–25. https://doi.org/10.1002/cpp.2586