Mindset and Negative Affect after Setbacks in the Workplace Moderated by

Maladaptive Perfectionism

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Abstract

Research on the impact of different kinds of mindsets in the workplace is increasing, however knowledge about the role of mindset in failure situations is still lacking. The present research weaves together previous theories regarding self-regulation with theories about people's beliefs regarding skill malleability in order to investigate whether there are group differences in the relationship between people's beliefs about the malleability of their work skills and feelings of negative affect. We also examined the moderating effect of maladaptive perfectionism in this relationship, because maladaptive perfectionism among employees is increasing. Professional skills and abilities mindset differs from person to person and may impact how goal achievement is perceived. Employees participated in an experiment where participants' (N = 73) beliefs regarding the malleability of their work related skills were activated. After completing the work related tasks, all participants were provided with the same negative feedback and responded to several scales. We found a significant relationship between PsaA mindset and negative affect, however this effect was in the opposite direction as expected. We found no statistically significant effect for the moderating impact of maladaptive perfectionism on the relationship between PsaA mindset and negative affect after experiencing setbacks. Findings suggest that a growth PsaA mindset seems to lead to more negative affect after setbacks in employees.

Keywords: Professional Skills and Abilities Mindset, Negative Affect, Maladaptive Perfectionism, Negative Feedback, Workplace

Mindset and Negative Affect after Setbacks in the Workplace, Moderated by

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In the current working climate, companies try to keep up with the fast-changing environment. As a consequence, employees are expected to be flexible and adapt to this environment by taking responsibility for new skills, coming up with innovative ideas, and managing the pressure of change (Schmitt & Scheibe, 2022). In the workplace, it is very common to make mistakes and experience failure (Drosos, et al., 2021). Following setbacks, feedback can be seen as useful information meant for learning from mistakes and motivating employees (Wang & Zhang, 2022). Organizations in which feedback is efficiently used, have higher performance levels (Ling & Soon, 2019; Shepherd & Cardon, 2009). A prerequisite to achieving this is that employees are open to feedback after failure and are willing to make an effort to integrate it into the workplace. However, not all people react to setbacks in the same way (Dweck & Yeager, 2019). This may be related to the mindset of the employee, meaning that the belief one holds regarding the malleability of their work aptitudes impacts the way feedback is processed (Atkinson, et al., 2022). Failure as well as receiving negative feedback can cause negative affect (Scheperd & Cardon, 2009). Thus, we will research why some employees experience less negative affect following negative feedback, by taking into account whether they believe their work-related skills to be malleable or not. Additionally, we expect perfectionism to be related to individuals' view of the world, affecting mindset and emotions (Chan, 2012). The amount of people with maladaptive perfectionism is increasing which leads to more employees with perfectionistic concerns which may alter people's reactions to setbacks, such as worry over performance or psychological distress (Curran & Hill, 2019; Mofield & Parker, 2008).

We want to make a couple of contributions to the literature, as very little research is done about the relationship between implicit theories and how people manage feedback after

failure (Burnette, et al., 2013). Research on the relationship between perfectionism and mindsets is also limited (Chernishenko, et al., 2021). To our knowledge, our study is among the first to manipulate mindset in the workplace. Investigating how the relationship between mindset and negative affect works in the workplace, will help to disentangle motivational changes in employees after setbacks and potentially deepen our understanding of people's reactions to setbacks (Song, et al, 2020). This knowledge can be used in mindset interventions, as they are a cheap way to implement change which can lead to positive organizational outcomes (Sisk, et al., 2018). The present research aims to find group differences in the relationship between people's beliefs about their work abilities and negative affect. Additionally, we want to check for the moderating influence of maladaptive perfectionism.

Soma model – a self-regulation perspective

The setting/operating/monitoring/achievement (SOMA) model is a theoretical model of self-regulation based on Carver and Scheier (1998) and enriched with a focus on implicit theories as predictors of affective self-regulation processes at each phase of goal pursuit (Burnette, et al., 2013). The framework is divided into three phases characteristic of goal-pursuit, based on Carver & Scheier's (1998) behavioral control theory of self-regulation: goal setting, goal operating, and goal monitoring. Goal setting consists of determining specific objectives that an individual wants to achieve. Once the goals have been established, activities to achieve the established goals are implemented in the goal operating phase. Subsequently, during the goal monitoring phase the potential for success is evaluated and possible constraints are considered. This phase is used to monitor how close someone is to achieving the desired end state. Ultimately, how someone performs throughout these phases determines goal achievement.

The SOMA-model further integrates implicit theories and self-regulation theories to explain how motivation is facilitated throughout goal pursuit depending on one's beliefs about their abilities. (Burnette, et al., 2013). People hold schematic knowledge structures, which guide the way meaning is attributed to events and integrate beliefs about the stability of an attribute. These structures are implicitly integrated into one's thoughts (Ross, 1989). Implicit theories can be divided into two different mental approaches to deal with life occurrences such as distance from desired performance in goal pursuit. Incremental theorists believe that attributes are malleable, whereas entity theorists believe that attributes are innate and stable (Dweck, 1999; Sisk, et al., 2018).

The phases of the self-regulatory cycle all contain affective processes that are determined by one's beliefs about their malleability of capabilities which later facilitate or hinder achievement (Burnette, et al., 2013). Incremental theorists focus on learning in the goal setting phase, use mastery-oriented strategies like increasing practice time at goal operating, and have higher success expectations and confidence while monitoring the goal (Burnette, et al., 2013). Opposed to incremental-based theorists, entity theorists are focused on proving their performance to conserve their positive view of their innate talent while setting goals, use helpless-oriented strategies like procrastinating in the goal operating phase, and are anxious and vulnerable while being confronted with the discrepancy between their progress and the desired end state while monitoring the goal (King, et al., 2012). When there is a discrepancy in the goal monitoring part, people are motivated to reduce this (Carver & Scheier, 1998). According to the SOMA self-regulation model, there are two types of motivational processes that come as emotional reactions following progress monitoring; negative affect and success expectations. One's mindset determines how the distance between the current and desired goal states is perceived, and what effect it has on negative feelings and success expectations in the process of goal achievement (Burnette, et al., 2013).- Ultimately, people with

incremental-oriented beliefs towards their abilities experience less negative affect than those with entity-oriented beliefs after goal-related discrepancies are detected in the goal monitoring phase (Burnette, et al., 2013).

Professional Skills and Abilities Mindset

Implicit theories regarding people's beliefs about their abilities later developed into the theory of mindset, which refers to the perceived malleability of one's cognitive abilities. According to Dweck (2006), mindsets can be dived into growth (incremental beliefs) and fixed mindsets (entity beliefs) (Dweck, 2006). Beliefs are domain and situation-specific and can fluctuate over time, so people do not necessarily hold one type of mindset for all areas of their life (Murphy & Reeves, 2019). Mindset-theory states that mindset plays a critical role in academic achievement (Boaler, 2013). It is arguable that this relationship also exists in the workplace (Maurer, et al., 2003). To examine the role of mindset among employees, the mindset theory is further explored in the workplace; under the name of professional skills and abilities mindset (PfaA mindset). This specific type of mindset can be defined as a belief system in which an individual believes whether people have the capability to significantly control, alter, or enhance their work-related skills and abilities throughout their professional career and differs from person to person (Schmitt & Scheibe, 2022).

Employees with a growth PfaA mindset see effort, motivation, and support as encouraging means to actively influence or change individuals' professional skills and abilities. By holding this mindset, employees actively approach challenges and resources to cope with current and expected career-related challenges (Schmitt & Scheibe, 2022). The belief that hard work leads to improvement and tolerance of failure as a learning experience makes people opt for more challenging tasks, which induces higher achievement (Blackwell, et al., 2007; Li & Bates, 2019). Particularly a growth professional skills and abilities mindset

is associated with positive organizational outcomes, such as employee performance and workplace engagement (Schmitt & Scheibe, 2022).

Employees with a fixed PfaA believe that people lack the means to influence, change or improve their professional skills and abilities (Schmitt & Scheibe, 2022). Increased effort is interpreted as an indication that the ultimate limit to perform and learn new things is reached (Mrazek, et al., 2018). By holding this mindset, employees are less likely to engage in proactive career behavior. Individuals with a fixed PsaA mindset are more likely to focus on conserving proven qualities, which leads to the avoidance of challenges (Schmitt & Scheibe, 2022). Furthermore, holding this mindset leads to higher anxiety about failure, because failure is interpreted as an indicator of their actual competence which cannot be improved (Gál, et al., 2022).

Negative feedback and subsequent experiences of negative affect

There has been a significant amount of research on negative affect following setbacks in the workplace, which seems to hamper later performance (Sheperd & Cardon, 2009). For example, employees experience depression, anxiety, worry, and stress after failure (Petitta, et al., 2019). Normally, feedback is information that allows employees to monitor their performance within the goals set. This comparison gives employees the possibility to change the strategies they employ toward attainment, to reduce the distance between the current and the desired performance (Atkinson, et al., 2022). However, after feedback negative emotional impact remains present for certain people (Burnette, et al., 2013). Something is considered a failure when there exists a deviation between expected and desired results (Cannon & Edmondson, 2005). When monitoring important goals, a distance from desired performance stirs anxiety in people (Carver & Scheier, 1998). Thus, failure and negative feedback can trigger several thoughts and emotions in employees, depending on how people choose to incorporate it with their system and beliefs (Scheperd & Cardon, 2009). Negative emotions

can decrease the motivation of employees and hinder the process of learning from failure (Sheperd & Cardon, 2009). Previous research stated that a fixed mindset is linked to negative affective states, whereas a growth mindset can function as a buffer for negative emotions (Gál & Szamosközi, 2016; Song, et al, 2020). We expect that a person's PfaA mindset to play a role in how they interpret negative feedback related to work aptitudes (Schmitt & Scheibe, 2022). When an employee's affect becomes more negative in response to a failure event, this can be seen as a negative emotional reaction (Sheperd & Cardon, 2009).

While it is common for failure to be accompanied by negative emotions, we expect not all employees react the same way to failure depending on the mindset they hold (Cannon & Edmondson, 2005; Shepherd & Cardon, 2009). Setbacks and negative feedback are subjectively interpreted in accordance with an employee's beliefs (Song, et al., 2020). Based on the self-regulation framework, distance between current performance and the desired end state detected during goal monitoring can impact motivation and later goal achievement through negative emotions or success expectations (Burnette, et al., 2013). Individuals with a fixed mindset tend to attribute failure more to their ability than to the effort made, while people with a growth mindset attribute failure equally to both ability and effort. Consequently, people with a growth mindset have the feeling of controllability of the cause of failure which can help to overcome failure and continue to progress (Song, et al., 2020). People with a growth mindset regard difficulties as learning opportunities, which may generate less negative affect than seeing them as a constraint (Schmitt & Scheibe, 2022).

Individuals with a growth mindset tend to increase effort after failure, instead of withdrawing from the activities (Mrazek, et al., 2018). Additionally, these employees tend to participate more in developing activities after failure which leads to higher post-failure performance whereas people with fixed mindsets tend to withdraw from activities (Maurer, et al., 2002). Feelings of performance and achieving goals can reduce negative emotions that can

arise after experiencing a discrepancy between the current and desired end state (Burnette, et al., 2022; Dweck & Yeager, 2019). Lastly, in general, people with a growth mindset are better able to regulate their emotions compared to people with fixed mindsets. Research showed that a growth mindset can protect individuals from the negative effects of stereotypes and ego threats (Burnette, et al., 2010). Negative feedback can be seen as an ego threat meaning that it may cause negative affect in people with a fixed mindset, it is plausible that this effect also occurs after work-related setbacks. To examine to which extent this relationship exists, we will research the relationship between a PfaA mindset and negative emotions after setbacks in expectance of establishing that a growth PfaA mindset buffers employees from negative affect. We use the SOMA self-regulation model to investigate whether activating growth or fixed mindsets impacts affective processes after negative feedback.

> **Hypothesis 1.** Mindset has an impact on negative affect after setbacks in the workplace, where a growth mindset leads to higher feelings of negative affect and a fixed mindset to less feelings of negative affect.

Maladaptive perfectionism

Perfectionists highly value the accomplishment of goals, which makes it a relevant predictor for feelings during goal achievement (Mofield & Parker, 2018). Perfectionism can be divided into two dimensions which differ in the perception of discrepancy between optimal performance and high standards (Chan, 2012). Perception of performance influences how goal pursuit is monitored, as perfectionists are less likely to perceive goals as successfully achieved (Burnette, et al., 2013; Stoeber, et al., 2008). Adaptive perfectionists see failure as an opportunity to learn and experience pleasure from successes (Mofield & Parker, 2018). On the other hand, maladaptive perfectionists are devastated by failure, never feel good enough, and are preoccupied with avoiding failure (Rice & Preusser, 2002). According to prior research, adaptive perfectionism is related to higher levels of positive feelings including self-

efficacy, life satisfaction, and positive affect. Contrarily, maladaptive perfectionism is related to higher levels of negative feelings including external locus of control, depression, hopelessness, and negative affect (Harris, et al., 2008; Lo & Abbott, 2019).

Previous studies demonstrate that mindsets and types of perfectionism are related (Mofield & Parker, 2008). Maladaptive perfectionism is associated with fixed mindsets as people with a fixed mindset often see themselves as incapable of correcting mistakes (Chernishenko, et al., 2021). A similar relationship was found between a growth mindset and adaptive perfectionism (Mofield & Parker, 2008). It is arguable that there are employees with a PsaA growth mindset and maladaptive perfectionism, but no research has been conducted on this. Hence the present study aims to shed light on the potential interaction between people's beliefs about their abilities and their perfectionistic traits.

Employees with maladaptive perfectionism experience negative emotions after setbacks when goals do not appear to be achieved (Gál, et al., 2022). In prior research, feelings of shame, guilt, and psychological distress were reported (Mofield & Parker, 2008; Stoeber, et al., 2008). These negative emotions influence goal achievement (Burnette, et al., 2013). The same relationship as in maladaptive perfectionists exists in employees with fixed-oriented beliefs. Employees who adopt a PsaA growth mindset, instead of a PsaA fixed mindset might find discrepancies between the goals set and the current state less threatening. Feelings of hopelessness are replaced with the belief that performance can be improved through effort and learning (Chan, 2012). This shift in mindset is associated with higher success expectations and less feelings of negative affect, which can increase motivation to perform better (Burnette, et al., 2013). In accordance with this perspective, we expect that maladaptive perfectionism provides a predisposition to negative affect through which PsaA mindset can influence negative emotions after setbacks.

We expect that maladaptive perfectionism moderates this relationship, where individuals with fixed-oriented beliefs and higher scores on maladaptive perfectionism will experience the most negative affect.

Hypothesis 2. The impact of mindset on negative affect after setbacks in the workplace is moderated by maladaptive perfectionism.

Figure 1

Model
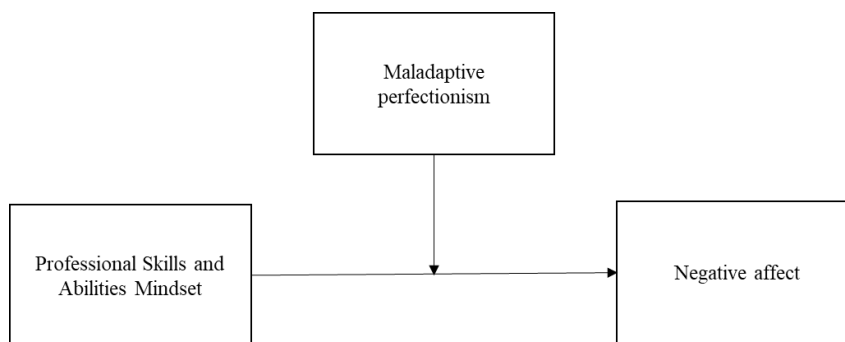
Method

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 beginning. Five Dutch-speaking participants reported having a zero-hour work contract, but

we decided to keep these cases in the analysis as zero-hour contracts while working more hours a week 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.

Table 1

Gender, Language, and Age of Participants

Baseline Characteristic		N	%	Mean	Std. Deviation
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			

Assessment and Measures

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 $\alpha = .86$ (Neff et al., 2021). In our study, the psychometric properties were satisfactory with a Cronbach's alpha of $\alpha = .76$.

Short Almost Perfect Scale (Rice, et al., 2014)

The Short Almost Perfect Scale is a shorter and more refined version of the Almost Perfect Scale-Revised from Slaney et al. (2001). We used the shortened scale because it measures perfectionism more efficiently. The scale is a self-report measure that assesses the two core dimensions of perfectionism, standards, and discrepancy. While the subscale of standards, concerning adaptive perfectionism, concerns high performance expectations, the discrepancy subscale, concerning maladaptive perfectionism, assesses self-critical attitudes associated with performance evaluation. The measure consists of 8 items out of which discrepancy was used to assess maladaptive perfectionism and standards were used to assess adaptive perfectionism. All items are scored on a 7-point Likert scale ranging from 1 = "strongly disagree" to 7 = "strongly agree". Items include "Doing my best never seems to be enough" (discrepancy) and "I expect the best from myself" (standards). The measure offers good psychometric properties with a reliability of $\alpha = .85$ for the subscale standards and $\alpha = .87$ for the subscale discrepancy. In our study, the psychometric properties were satisfactory with a Cronbach's alpha of $\alpha = .88$ for adaptive perfectionism and $\alpha = .89$ for maladaptive perfectionism.

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 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 $\alpha = .75$ (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, 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 $\alpha = .81$.

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 (code of approval:).

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. However, our aim was to investigate the relationship between professional skills and abilities mindset 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 ensure 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 would later be tested on their memory of the main message of the text. In reality, 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 believe have 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, participants 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 standardised, bogus negative feedback indicating below-average performance. Subsequently, and under consideration of the negative feedback that has 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 and the State Self-Compassion Scale Short Form.

After providing demographics, such as age, gender, country of residence, level of educational attainment and number of work-hours 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 after negative feedback (hypothesis 1). 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 mindset and maladaptive perfectionism

(hypothesis 2). Therefore, the product term between mindset and maladaptive perfectionism 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 negative affect and maladaptive perfectionism.

Results

Assumptions for analysis

Prior to our analysis, an assumption check is carried out to determine whether the performance of analyses of variance on our data is appropriate. Several tests were conducted to test if the assumptions of ANCOVA are met. Negative emotions scores for mindset were normally distributed, as assessed by a Shapiro-Wilk test, $W(73) = 0.98$, $p = .22$. There were no outliers in the data, as assessed from a Q-Q plot, see figure A1 and A2 in the appendix. Additionally, the assumption of the homogeneity of regression slopes was not violated, there is no significant interaction effect between mindset and perfectionism, $F(1, 72) = 0.39$, $p = 0.53$. In order to test the assumption of homoscedasticity we ran Levine's test, which showed that the homogeneity of variances was not violated, $F(1,72) = 0.12$, $p = 0.64$. Negative emotions and perfectionism are linearly related, as shown in the plots, see figure 2. Observations in our study are independent, as participants were assigned only to the growth or the fixed mindset condition. The analyses reveal that the assumptions for the ANCOVA are met.

Figure 2

Means of Negative Affect
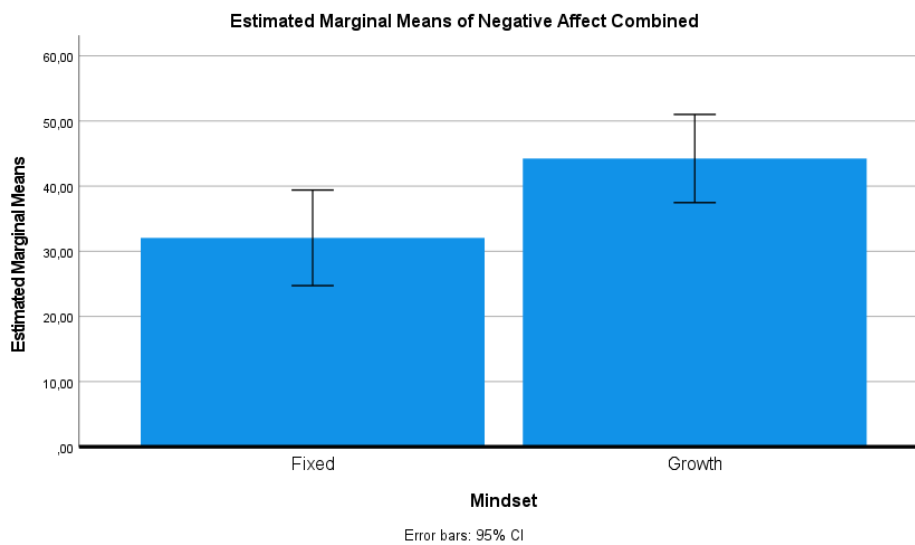
Descriptive statistics and Correlations

To assess whether mindset impacts negative emotions, we assigned participants randomly to two mindset conditions: growth ($M = 44.25$, $SD = 21.30$) and fixed ($M = 32.07$, $SD = 21.65$). Further descriptive statistics are reported in table 2. Maladaptive perfectionism was found to be significantly correlated with negative affect, $r = 0.46$, $p<0.00$, but not with educational level. Age was found to be significantly correlated with maladaptive perfectionism, $r = -0.28$, $p<0.05$, as reported in table 3.

Table 2

Descriptive statistics

Type of mindset	Negative Affect		Maladaptive perfectionism		Age		
	Mean	SD	Mean	SD	Mean	SD	N
Fixed	32.07	21.65	3.85	1.51	40.53	15.84	34
Growth	44.25	21.30	4.01	1.57	41.34	13.66	40
Total	38.65	2.58	3.94	0.18	40.94	14.75	74

Table 3

Correlations between measures

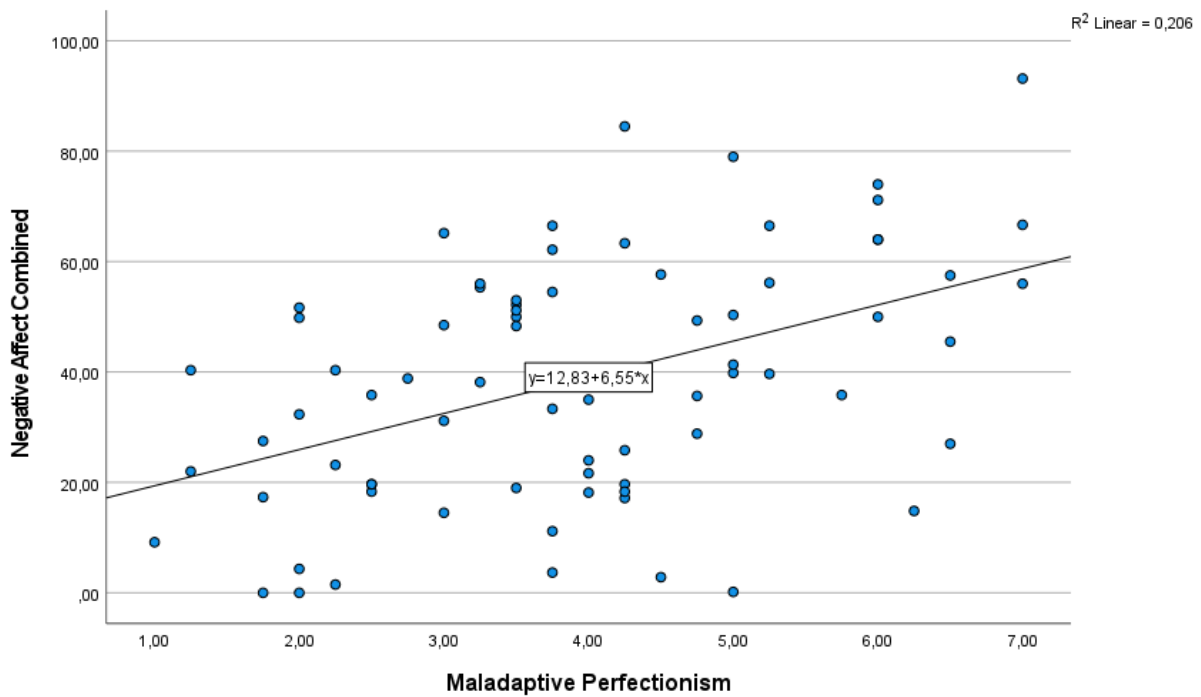| Measure	Negative affect	Maladaptive perfectionism	Age
Negative affect			
Maladaptive perfectionism	0.46**		
Age	-0.01	-0.28*	
Educational level	-0.09	-0.13	-0.11

Note. **p<.01, *p<.05

Main Effect of Mindset

To test the differences between the two experimental groups divided according to the PfaA mindset manipulation, we ran an ANOVA, results are presented in Table 4. The ANOVA revealed a significant main effect for mindset on negative affect ($F(1,72) = 5.47$, $p<0.05$), but in the opposite direction as we expected, see figure 3. Participants in the growth-mindset condition reported higher negative emotions than participants in the fixed-mindset condition. The results from the ANOVA indicate that mindset has an impact on negative affect after setbacks in the workplace, but in the opposite direction as in hypothesis 1.

Figure 3

Linear plot Negative Affect and Maladaptive Perfectionism

Table 4

ANOVA results for Negative affect and Mindset

Source	SS	df	MS	F	p	η^2
Mindset	2546.08	1	2546.08	5.47	0.02*	0,76
Error	33053.69	71	465.55			

Note. R Squared = .072 (Adjusted R squared = 0.06)

* Significant at 0.05

Moderating effect of Maladaptive Perfectionism

As presented in table 5, the ANCOVA revealed a nonsignificant interaction effect of mindset on negative affect with maladaptive perfectionism added into the analysis as a covariate ($F(1, 72) = 0.39$, $p = .53$). The ANCOVA revealed a nonsignificant interaction between the experimental condition and maladaptive perfectionism. In contrary to our predictions, the results from the ANCOVA indicate that the relationship between mindset and

negative affect does not vary depending on the level of maladaptive perfectionism. The results

contradict hypothesis 2 that maladaptive perfectionism moderates the relationship between

mindset and negative affect.

Table 5

ANCOVA results for Negative affect and Mindset with Maladaptive perfectionism

Source	SS	*df*	MS	*F*	*p*	η^2
Mindset	789.78	1	789.78	2.10	0.15	0.03
Maladaptive perfectionism	7133.59	1	7133.59	18.99	0.00	0.21
Mindset * Maladaptive perfectionism	149.07	1	149.07	0.39	0.53	0.01
Error	25915.97	69	375.59			

Note. R Squared = .27 (Adjusted R squared = 0.24)

Discussion

In this study, we researched through an experiment among employees if the activation

of a growth professional skills and abilities mindset is related to employees' negative affect

after setbacks and if this relationship is moderated by maladaptive perfectionism. We

activated a growth- or fixed-oriented mindset in the participants through vignettes and gave

them the same standard negative feedback after executing experimental tasks that were

supposed to feel related to the work of the participants. We measured levels of negative affect

after the participants received negative feedback to find group differences between people's

beliefs about their professional skills and abilities and negative affect. In addition, we

measured the moderating influence of maladaptive perfectionism.

Linking findings to previous research

Previous research most often found that particularly a growth mindset is associated with positive outcomes, people experience less negative affect, are motivated, and perform better in comparison to individuals with a fixed mindset (Gál & Szamosközi, 2016; Yeager, et al., 2019). While our findings suggest that employees with a growth-oriented PsaA mindset experience more negative affect than employees that adopted a fixed-oriented PsaA mindset. However, there appears to be an overall inconsistency in the literature about mindset, indicating it is challenging to accurately measure the concept of mindset (Sisk, et al., 2018). Mindsets are sub-group and domain-specific so people's beliefs really depend on context (Chan, 2012). This may explain why our results are contrary to what we expected.

According to Burnette et al., (2013), ego threat strengthened the effect of implicit theories on how information of distance between current and desired goals is perceived but did not significantly strengthen the existing relationship between incremental beliefs and negative emotions, where ego threats represent negative feedback (Burnette, et al., 2013). This maybe suggests that negative feedback not always leads to negative affect. For people with a fixed mindset knowing if they have reached a goal is all the information they need, in contrary to people with a growth mindset who need information about the process from which they can investigate ways to improve in the future (Burnette, et al., 2013). The opposite effect we found in the relationship between mindset and negative emotions may be derived from the way feedback was provided. In our study, the negative feedback contains information about the overall score but no information about the progress from which employees can extract points for improvement. Considering that employees with a PsaA mindset search for opportunities to learn and improve, the absence of this feedback may cause more negative emotions.

Both maladaptive and adaptive perfectionists experience negative affect after negative feedback, even though maladaptive perfectionists experience significantly more negative affect (Lo & Abbott, 2019). Since employees with a growth mindset see failure as an opportunity to learn and are not devastated by it, we expected that maladaptive perfectionism would lower the buffering impact of a growth mindset for negative affect (Schmitt & Scheibe, 2022). However, previous research found that maladaptive perfectionists predicted positive affect after repeated failure, this indicates that the relationship between maladaptive perfectionism and negative affect may be depending on circumstances and needs further investigation (Lo & Abbott, 2019). This may explain that contradictory to what we expected, no significant moderating relationship was found.

Limitations

This research has several limitations. First, although executing an experimental design, the present study failed to create career-related tasks which reduced the impact of the mindset manipulations and negative feedback on the employees. As a consequence of the task being non-related to the skills used in the work field, it may not feel like the given feedback is relevant and did not evoke feelings that are linked to employees' beliefs about their professional skills and abilities. However, the scales used in the experiment were related to work performance. Despite the potential limitations, the occupational tasks we used were used in a previous study and tested by a small pilot study ($N = 7$) on the coherence of tasks, instructions, and items. Additionally, the effect of only one failure experience is tested in the present study so no assumptions can be made about the relationship between mindset and negative feedback after repeatedly being confronted with failure in the workplace.

Second, in the present study, participants highly agreed with the growth vignette but tended not to adopt the point of view of the fixed vignette. Even though all the participants received the same standard negative feedback, the participants assigned to the fixed condition

reported comparatively neutral on the surveys whereas participants in the growth condition gave stronger answers. This can be caused by several reasons; possibly the manipulation for the fixed mindset condition was not strong enough or maybe the fixed condition is less attractive to adopt because it states that not all skills can be improved by making an effort.

Third, our sample was relatively small. Among the participants was a high attrition rate, only 85 finished the experiment while roughly 150 abandoned it. However, the participants were equally distributed in the growth and fixed mindset condition. The final limitation of the present study is that the classifications completely rely on self-reported data which is subjective.

Directions for future research

Research on the relationship between mindset, negative affect, and maladaptive perfectionism is still limited, so future research should focus on elaborating the knowledge of this relationship. Future research should examine the relationship between PsaA mindset and negative affect more extensively to find out more about the opposite direction of the relationship we found. In the present research, two dependent variables were tested, to examine the effect of both motivational factors of the SOMA self-regulation model; negative affect and success expectations (Burnette, et al., 2013). In terms of future research, it would be useful to extend the current findings by examining both negative affect and success expectations separately, so the experiment can have more specified scales and tasks. This eliminates possible learning effects and makes it possible to test the variables in more depth without fatigue effects between the scales. The sample should be controlled for work fields so specified career-related tasks and feedback can be utilized in the experiment. This increases the experienced value of negative feedback because participants have the feeling that the tasks are relevant to their performance at work which makes it feel like a more realistic failure situation. In addition, it might be useful to screen participants on the strength of mindset

beliefs because people with strong mindset beliefs might be difficult to affect with a mindset manipulation (Spray, et al, 2006). The experiment should be done with a greater sample, which will probably increase the strength of the effects that can be uncovered by the study.

Furthermore, it seems like less maladaptive perfectionism is found at higher ages since age and maladaptive perfectionism are significantly negatively correlated in our study. Older people may have better emotion-regulation strategies, which makes them less vulnerable to negative affect after negative feedback (Riediger & Luong, 2015). The relationship between age and maladaptive perfectionism should be researched in future studies.

Practical Implications

The data from this present research suggest some potential intervention implications. Our findings can be used in companies to execute mindset interventions to make employees adopt a mindset that helps them to perform, especially after experiencing failure. It suggests a concrete approach that individuals can utilize to reach their personal goals (Mrazek, et al., 2018). However, not all studies support the role of mindset as being influential on achievement, especially when considering mindset interventions. Plenty of studies suggest that mindset interventions improve performance only by a very small margin so the intervention should be carefully designed (Sisk, et al., 2018).

It also gives implications for the way feedback is provided to employees. Based on mindset, people need different forms of feedback to make sure they stay motivated after feedback (Atkinson, et al., 2022). Feedback should be given constructively with suggestions for improvement and advice while being based on the individual traits of the employee (Atkinson, 2022). The present findings about mindset and maladaptive perfectionism also suggest that interventions can be developed to help maladaptive perfectionists deal with setbacks. For example, coaching employees to convert maladaptive perfectionism traits into

adaptive perfectionism makes employees more resilient to negative affect after negative feedback.

Conclusion

Concluding, our study gave more insight into the relationship between professional skills and abilities mindset and negative affect on employees while being moderated by maladaptive perfectionism. We found that opposed as we expected, a growth PsaA mindset seems to lead to more negative affect on employees, however this effect may be attributional to the sample and method we used. We found no statistically significant effect for the moderating impact of maladaptive perfectionism on the relationship between PsaA mindset and negative affect after experiencing setbacks, so other traits may be better to explain the relationship. More extensive research needs to be done to investigate these relationships.

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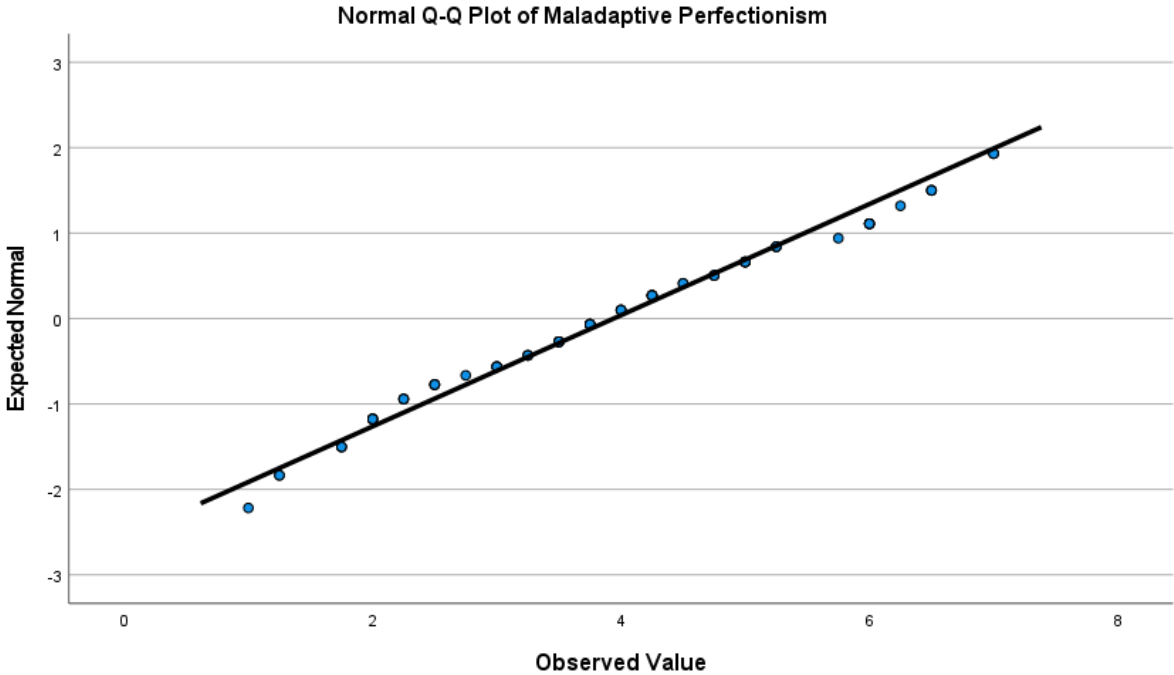
Appendix

Figure A1

Q-Q Plot for Maladaptive Perfectionism

Figure A2

Q-Q Plot for Negative Affect