Handling Work-Related Setbacks: A Professional Skills and Abilities Mindset Analysis

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Abstract

Setbacks and negative feedback are very common for people, especially in the context of the workplace. Thus, we rely on their beliefs regarding the malleability of skills to explain differences in reactions to negative feedback among people. Mindset, which represents a set of beliefs people possess, is much investigated in general, but research on mindset in the workplace is rather scarce. Specifically, we were interested in the influence of professional skills and abilities mindset on people experiencing negative feedback in the domain of work. Therefore, we hypothesized that a growth mindset leads to more success expectations, which we measured in terms of self-efficacy (H1), and that maladaptive perfectionism influences the relationship between mindset and success expectations (H2). An experiment with two conditions was conducted, where participants were guided towards either believing that their abilities are malleable (growth mindset) or not changeable (fixed mindset). Following the completion of several tasks, participants received negative feedback, and then information regarding their success expectation level was collected. Statistical analyses comparing the two groups revealed that a growth mindset leads to more success expectations and this relationship is influenced by maladaptive perfectionism. However, a small sample size as well as uncertainties about the manipulations require a careful interpretation of the results.

Keywords: mindset, professional skills and abilities, setbacks, success expectation, growth and fixed

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In today's society, most people are confronted with a lot of different tasks and demands they need to handle. Especially the workplace is, for most people every day, an environment with high demands and a big variety of tasks. Since failure and mistakes are inevitable in such dynamic contexts, negative emotions and other consequences may arise. Everyone is confronted with failure and negative feedback, but there are major differences in how people react to them because people interpret life occurrences differently (Forsythe & Johnson, 2016). Some people who are confronted with failure during their work continue having an optimistic view and try to learn, while others are discouraged to perform even worse in the future because failure and its following negative emotions make them unconfident in their own abilities (Shepherd & Cardon, 2009). For this reason, we were interested in how exactly people cope and which factors influence their reactions. We wanted to investigate how employees react to certain setbacks and, more specifically, what effect professional setbacks have on them. Because some people react more negatively than others, we were interested in what exactly influences the way they handle failure. People can react in a great variety of ways, for example, freeze and disengage from any further problem-solving behavior, or approach and engage in new challenges (Dweck & Leggett, 1988).

Differences in people's reactions can potentially be explained by the beliefs they possess regarding the stability or malleability of their skills. Thus, we might be able to explain varying reactions by considering how they think about work-related abilities and we expected their expectations of future success to be dependent on those beliefs. In other words, we wanted to discover whether self-regulatory processes, like success expectations, are different depending on someone's beliefs about themselves or the world (Burnette et al., 2018). Furthermore, in order to explain the differences between people's reactions to setbacks, we relied on theories about their beliefs regarding themselves and the world. Also, we wanted to investigate their beliefs regarding the malleability of their skills in the context of work, where barely any research on this topic exists. We investigated how one's mindset relates to the expectation of

being successful, respectively whether people who see their work abilities as malleable experience more expectations of success following negative feedback, as opposed to people who see their abilities as unchangeable. Additionally, the paper builds upon the initial expectation with the hypothesis that Maladaptive Perfectionism moderates the relationship between one's mindset and success expectations.

SOMA framework

Setbacks can be dealt with through self-regulatory processes like reassessing strategies. However, emotional/affective reactions to failure or other kinds of setbacks can be influenced by people's beliefs about the world and their abilities (Burnette et al., 2013). According to the setting/operating/monitoring/achievement (SOMA) model (Appendix A; Burnette et al., 2013), the process of goal pursuit can be predicted by implicit theories, meaning that entity (fixed mindset) and incremental approaches (growth mindset) address goal pursuit differently. The SOMA model combines self-regulation and implicit theories in order to see how these types of theories differ at each stage of goal pursuit. For our research it provided the framework, structuring the process of answering the research questions.

According to the SOMA model, the self-regulation process of goal pursuit can differ strongly depending on whether someone believes in their abilities being changeable (growth mindset) or not (fixed mindset) (Burnette et al., 2012). This can be visible through various self-regulation processes at each stage of goal pursuit which later results in goal achievement. Implicit theories required us to divide people into those who possess incremental beliefs, assuming that human attributes are malleable (growth mindset), and those having entity beliefs, assuming that these are fixed (fixed mindset). Implicit theories were linked to specific processes at each stage (goal setting, goal operating, goal monitoring) of the self-regulation process, which therefore have a direct effect on the goal achievement stage. At the stage of goal setting, we could observe differences between incremental and entity theories. In entity theories, people set performance goals whereas incremental theories refer to learning goals, thus the focus on enriching one's set of knowledge and abilities depends on whether one believes in their

malleability. Furthermore, the stage of goal operating consists of mastery strategies and helpless strategies, and goal monitoring includes negative emotions and expectations.

According to an implicit theory perspective, the belief of human attributes as being malleable or fixed influences self-regulatory processes and outcomes (Burnette et al., 2012). Incremental beliefs and entity beliefs are the main theories describing those. Incremental beliefs can be seen as a growth mindset, describing that human attributes can be developed over time through persistence and effort. For example, in the domain of intelligence, having a growth mindset offers the possibility to develop intelligence through convenient learning strategies, effort, and the help of others (Dweck & Yeager, 2019). Also, in the context of motivation, scientific findings suggest adaptive self-regulation and coping are associated with implicit theories (Trautner & Schwinger, 2022), which further highlights the importance of considering those.

Since we investigated setbacks, we focused on the goal monitoring stage because setbacks represent information about the performance, whether someone is where he is supposed to be or not. Goal monitoring takes place after individuals have set their goals and progressed towards them to some extent (Burnette et al., 2012). Then, they monitor them to check whether they made sufficient progress toward achievement. Additionally, it clarifies already achieved accomplishments and parts that still need to be worked on. Therefore, it is a very important stage in the context of setbacks since people learn what skills they still need to develop and which already work well. The SOMA model might help to explain reactions to setbacks and how people incorporate harmful information into their own worldview while having more or fewer success expectations, depending on how they integrate negative feedback. Differences in beliefs regarding the malleability of skills are relevant to goal monitoring, meaning that when compared to entity beliefs, incremental beliefs are generally connected with higher expectations of success and lower negative affect following the progress check (Burnette et al., 2013). Goal Monitoring is important in terms of setbacks because it clarifies what was already accomplished by the individual and what still needs some work.

It is especially important to consider differences between people's beliefs in situations

where they are exposed to harmful information for the self, like negative feedback. The first ideas about mindset were discussed in the area of intelligence and were previously known as implicit theories because it was assumed that people are unaware of them (Dweck & Yeager, 2019). According to Dweck & Yeager (2019), it is beneficial for children in school to see their abilities as malleable and that they can increase their intelligence, instead of assuming to not be smart enough to improve. The beliefs someone holds can be relevant in a variety of challenging situations, albeit mindset interventions do not seem to be as effective as Researchers in the past have claimed. Even though mindset interventions are relatively cheap and time efficient, findings could not support the assumptions that these result in large increments in student achievement and educational achievement, except for students from difficult backgrounds (Sisk, 2018). However, mindset still predicts all kinds of outcomes, for example, self-regulated learning or English language learning achievements (Bai &Wang, 2020).

Mindset

A mindset describes a set of beliefs people possess, that influences how they see themselves and the world and therefore has an effect on their way of thinking and behavior. The type of mindset someone holds can influence various aspects of performance, especially self-regulation (Burnette et al., 2012). Thus, it determines someone's achievements and success in any given situation. Mindset is domain-specific, meaning that people are said to be able to have different mindsets in different areas, for example, a fixed mindset regarding intelligence but a growth mindset in terms of career achievement (Burnette et al., 2012).

Mindsets have been extensively investigated in areas like creativity, academia, or intelligence (Dweck & Yeager, 2019; Macnamara & Rupani, 2017). In the workplace, on the other hand, research on mindset is rare. A recently established construct in this domain is the professional skills and abilities mindset, which concerns abilities in the workplace (Schmitt & Scheibe, 2022). A professional skills and abilities growth mindset is defined as the belief of an individual that skills and abilities in the workplace can be changed and increased over time through support, motivation, and effort, and people holding this seem to be more proactive

about their career. A professional skills and abilities fixed mindset, on the other hand, describes the view that people do not possess the capability of changing and influencing abilities, which are instead a concern of innate talent and learning at a young age. Here, skills are seen as procedural knowledge which is necessary for performing tasks, and abilities describe a more natural potential and general capacity of a person.

A fixed mindset is comparable to entity beliefs, assuming that abilities are natural and cannot be changed (Burnette et al., 2012). Also, they might convey the assumption that intelligence and talent alone lead to success, and effort is not required. For example, in the domain of intelligence, a fixed mindset includes the belief that intelligence is natural and cannot be changed or increased (Dweck & Yeager, 2019). The SOMA model takes the role of a framework, using these three phases of goal pursuit. This framework includes self-regulation and implicit theories, which are important concepts linked together to explain behavior. According to research (Forsythe & Johnson, 2016), students with a fixed mindset are more likely to engage in defense behaviors after receiving negative feedback. Those can be a decreased ability to self-monitor or react with humor to negative experiences and aim for the protection of someone's self-esteem. As a result, they are more focused on results and very concerned about making mistakes, which in turn leads to a fear of failure and lower self-efficacy.

On the other hand, students with a growth mindset are said to be more motivated to actively react to their feedback and engage in activities that trigger their development. They see feedback as a possibility to leave their comfort zone and as a positive learning experience (Forsythe & Johnson, 2016). In contrast to people with a fixed mindset, engaging in avoidance tendencies, growth-oriented people seem to be more oriented towards approach tendencies, which describe the position of acting and trying again. Thus, failure is closely related to self-regulation and it is important to investigate their consequences because a certain type of mindset might predict a certain reaction to threatening situations like negative feedback. For example, Li & Bates (2019) indicate, that children with a growth mindset, elicited by receiving praise for hard work, showed significantly higher performance after experiencing failure.

The mindset framework proposes that people have different assumptions of whether human abilities and capabilities are malleable which in turn influences how they handle tasks they are confronted with (Dweck & Yeager, 2019). Because people holding growth-oriented beliefs tend to see what they already have achieved, seem to be more likely to get up after failure, and are optimistic about future changes, we hypothesized that a growth mindset leads to more success expectations.

Setbacks and Negative Feedback

The present paper explores mindset in a domain where it barely has been researched, namely in the workplace, where challenges and setbacks are more common than anywhere else. During the goal monitoring phase, people are confronted with the current state of their goal as well as their desired state (Carver & Scheier, 1998). At work, when being confronted with negative feedback, learning takes place, which is the realization of not really being on track. Failure and negative feedback have emotional as well as behavioral effects and can evoke a variety of consequences with individual differences in intensity and also the extent of future learning (Forsythe & Johnson, 1988). For example, according to the model of an organizational member's emotional process from project failure (Shepherd & Cardon, 2009), failure leads to a deficit in psychological well-being and therefore a negative emotional reaction. Other times, having to improve oneself makes people resilient to future challenges. Self-compassion then influences the amount of learning from failure and the motivation of trying again. So, greater self-compassion leads to fewer obstacles to trying again.

In general, failure is defined as the situation when desired results deviate from expected results (Cannon & Edmondson, 2005). It includes avoidable errors as well as non-avoidable ones. Those deviations can be positive and negative, but in this context, the focus lies on negative ones because those are said to result in more special challenges when learning from them takes place. Setbacks happen inevitably and can come in the form of receiving negative feedback, which is very common. However, it matters how people interpret and react to it. Thus, people can experience either more or fewer expectations of success depending on how

they interpret their distance from the goal.

Success expectations

Following failure/setbacks, emotional processes take place which were investigated, especially in terms of success expectations. Failure or negative feedback highlights the need for adapting one's goal-directed strategies. This can lead to avoidance tendencies, like a state of 'freezing' or complete withdrawal (Dweck & Leggett, 1988). Also, success expectations are defined as strong beliefs about achieving one's goals. The success expectations someone holds in the context of negative feedback are determined by their mindset. People with fixed and growth mindsets might hold different levels of confidence because they conceptualize situations in different manners and react in different ways. Here, negative feedback takes the role of an ego-threat situation. Ego-threats, described by the SOMA model (Burnette et al., 2013) as situations in which people's desired positive self is threatened, moderate the relation between implicit theories and goal monitoring. Interaction effects with those ego threats, for example, failure feedback, influence the effect strengths of self-regulation on the goal achievement stage.

Maladaptive Perfectionism

Another factor that is considered in determining how people react to failure or negative feedback is maladaptive perfectionism. Perfectionism describes a trait of having unrealistically high expectations for oneself and others and is divided into an unhealthy and a healthy dimension (Antony L. et. Al, 2019). It can be convenient in many situations for achieving goals (adaptive perfectionism) since it works as a motivator and leads someone to overcome obstacles and achieve success by having high personal standards and a need for organization. On the other hand, expectations can also be too high, becoming harmful because of concerns over mistakes and leading to the urge of avoiding failure and therefore having a negative orientation (maladaptive perfectionism). The maladaptive type includes doubts about one's actions and concerns over mistakes. High amounts of maladaptive perfectionism are associated with greater negative outcomes, like higher negative affect, negative emotions, and lower positive affect, and are associated with poor satisfaction, career achievement, and insecure relationships as well as

lower self-esteem, self-confidence, and well-being (Antony L. et. Al, 2019; Rice & Preusser, 2002). Since failure plays such a big role in maladaptive perfectionism it might be interesting what influence it actually has. Because of past Research, we expected maladaptive perfectionism to act as a moderator and influence the relationship between people's mindset and their expectations of success. To make statements about this we included scales to measure maladaptive perfectionism as well as success expectations.

Our study aimed to investigate the relationship between people's mindset and their expectations of success. More precisely, we wanted to know if the activation of a growth professional skills and abilities mindset improves employees' reactions to setbacks. Therefore, we hypothesized that (1) a growth mindset leads to more success expectations, and that (2) maladaptive perfectionism influences the relationship between mindset and success expectation. Both mindsets were activated for two different groups of participants. After some tasks, negative feedback was shown to participants, unrelated to their actual performance. Measurement scales were then used to investigate the relationship between variables and to answer the Research questions. Built on past Research and models we investigated the role of the mindset and investigate the influence of maladaptive perfectionism, which acts as a moderator in this relationship (Figure 1).

Figure 1.

Visual Representation of the moderation model
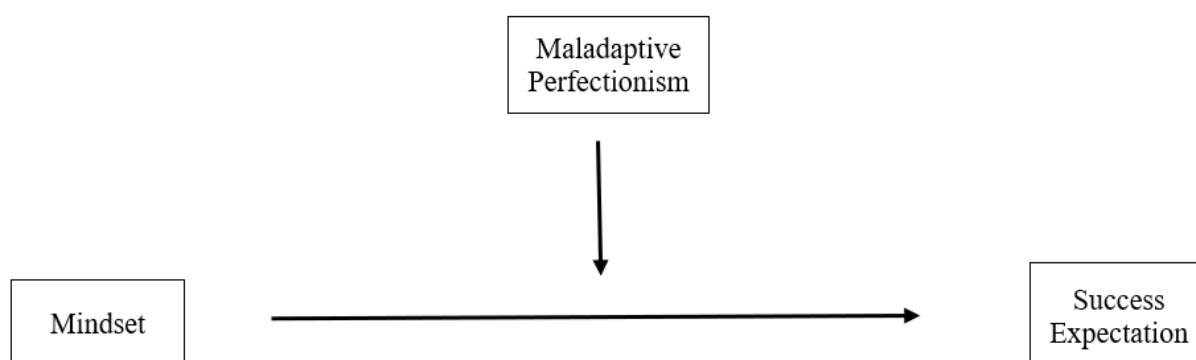
Method

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

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

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

To assess negative affect after receiving negative feedback, a combination of multiple scales and tools was used (Betella & Verschure, 2016; Harley et al., 2019; Pekrun et al., 2011). 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 $\alpha = .81$.

Developmental Self-Efficacy Scale

In order to assess one's success expectations, we draw inspiration from previously

published research where success expectations were related to, and measured with, self-efficacy (Maurer et al., 2002; Tabernero & Wood, 1999). The Developmental Self-Efficacy Scale (Chen et al., 2001) is a self-report measure that includes two types of self-efficacy for development: relative and absolute. In this study, we only reported on absolute self-efficacy. Absolute self-efficacy was assessed by the scale developed by Maurer et al. (2002), going from 1 = "disagree very strongly" to 7 = "agree very strongly". The scale measures participants' beliefs they can improve their skills without reference to others, and consists of four items such as "When facing difficult tasks, I am certain that I will accomplish them". The Cronbach's alpha was not indicated, however, the scale has been used before in previous research projects, which ensures reliability (Maurer et al., 2003). The reliability of the scale in this study was $\alpha = .96$.

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. 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 standardized, 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 the 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 was be performed in order to determine whether there is a statistically significant difference between growth and fixed professional skills and abilities mindset on success expectation (H1). Thereby, the two experimental groups the participants were randomly assigned to represented our independent variable mindset, while group differences were examined in our dependent variable success expectation. Subsequently, a one-way ANCOVA was carried out to examine whether there exists a hypothesized interaction effect between mindset and maladaptive perfectionism (H2). Therefore, the product term between mindset and maladaptive perfectionism was analyzed. The dependent variable success expectation is in our analysis referred to as self-efficacy.

Prior to our analysis, an assumption check was carried out to determine whether the performance of both an ANOVA and ANCOVA on our data is appropriate. Two main assumptions were checked, namely normality and homoscedasticity.

Results

In order to run the ANCOVA to test our stated hypotheses we tested the mentioned assumptions. In the main analysis, an ANOVA was performed for the first hypothesis and an ANCOVA for the second hypothesis. The moderator maladaptive perfectionism is here referred to as a covariate. The variable success expectation is measured using the term self-efficacy.

Descriptive statistics

The following table contains descriptive statistics regarding our sample (N=73) for the main variables maladaptive perfectionism and self-efficacy, separated by the two mindset conditions.

Table 2.

Descriptive Statistics

		N	M	SD
Self-efficacy	Growth	40	5.15	1.3
	Fixed	33	4.5	1.38
Maladaptive Perfectionism	Growth	40	4.01	1.57
	Fixed	33	3.85	1.54

Assumption check

To test the assumption of normality, we created a Q-Q plot (Appendix B) and performed a Shapiro-Wilk test which showed a significant deviation from normality of our distribution for self-efficacy ($SW = .94, p = 0.01$). The assumption of normality is thus not technically met for self-efficacy. However, by looking at the plot we can see that the pattern has not deviated that far from normality, so we proceeded with the analysis.

Additionally, for testing the assumption of homoscedasticity (homogeneity of variances) Levene's test was performed. This showed that we do not reject the null hypothesis of equal error variances ($F(1, 71)=.06, p=.8$). Thus, the assumption of homoscedasticity is met.

Main Analysis

To test the first hypothesis whether mindset has an influence on self-efficacy, we conducted an ANOVA, treating mindset as a fixed factor and self-efficacy as dependent variable. The ANOVA showed that mindset does not have a significant effect on self-efficacy ($F(1,71)= 4.3$, $p=0.07$). After a deeper analysis of the data, we uncovered the fact that some outliers existed in the data, as can be seen in the plot (Appendix B). Thus, we ran the ANOVA again without these outliers, to investigate which influence they have on our results.

After removing the outliers, there was a significant effect ($F(1,67)=7.26$, $p=.04$). Because of the small sample size, severe outliers can completely change our results and therefore need to be removed. Our hypothesis that mindset has an influence on self-efficacy can therefore be confirmed.

To test our second hypothesis whether maladaptive perfectionism has an influence on the relationship between mindset and self-efficacy, treating maladaptive perfectionism as a covariate, a one-way between-subjects ANCOVA was calculated. According to the ANCOVA summary information, maladaptive perfectionism was significantly related to self-efficacy ($F(2,66)=5.58$, $p=.01$), and our second hypothesis can be confirmed, with more maladaptive perfectionism negatively influencing the relationship between mindset and success self-efficacy.

Discussion

We investigated how people's mindset relates to the way they expect to be successful regarding their career and whether maladaptive perfectionism has an influence on this. We hypothesized that having a growth mindset leads to more success expectations. After identifying and removing severe outliers, the evidence confirmed the hypothesis. Additionally, we hypothesized that maladaptive perfectionism influences the relationship between mindset and success expectations. Similarly, our results suggested significant evidence confirming this hypothesis as well.

Our expectations were based on existing Research and the SOMA model, which combines self-regulation and implicit theories and explains how the process of goal pursuit differs between those theories. Considering our results, this goes in line with the differences in mindset regarding the handling of setbacks and the expectations of being successful. The workplace, as an environment where setbacks occur regularly, seems to be relevant in the context of mindset conceptualizations and seeing one's own abilities as malleable appears to be beneficial, as supported by Macnamara & Rupani (2017), and leads to the fact that people tend to agree with self-enhancing information like the growth mindset.

In contrast to Sisk (2018), who proposed the claim that mindset is not as important, our results suggest that mindset indeed has an impact. Our Research aligns with studies that claim implicit theories predict success expectations, such as in the area of body weight, where the implicit belief of the malleability of someone's weight influences the expectation of successfully losing weight (Burnette, 2010). Additionally, Burnette (2010) suggests that the relationship between mindset and self-regulatory processes is moderated by ego threats, which are negative feedback or situations that give unfavorable information about the self. This notion is further supported by research in the domain of female entrepreneurship (Burnette et al., 2012) which supports our results by claiming that incremental beliefs are connected with higher self-efficacy after threats to business success and personal ability, compared to entity beliefs. Here,

threats consisted of being told that entrepreneurial abilities are driven by masculine traits and can be compared to the negative feedback in our study.

However, not only had our study a rather small sample size, also our results did show only a small effect size (R^2=0.06), the variance between groups, explaining how important mindset is for differences between groups of the self-efficacy measure. This suggests that mindset might be important but may not be the only important factor. This is consistent with Research (Burnette et al., 2020) showing that the mindset did not have a significant effect on academic performance in the domain of computer science. Further, Sisk (2018) suggests that mindset in the area of academia is only relevant for people coming from difficult backgrounds.

However, our Research suggested that there may be a minor benefit to paying attention to mindset in the workplace which is further supported by Dweck (2012), who has uncovered that mindset has more relevance in some workplaces than in others. According to Dweck & Nussbaum (2008), after receiving negative feedback, participants with a fixed mindset reacted more defensively while those with a growth mindset tended to directly address the reason of their bad performance. Other studies (Forsythe & Johnson, 2016) confirmed this happening among students and observed a fear of failure and lower self-efficacy as a consequence. This phenomenon might suggest considering the possibility of constructive feedback instead of positive or negative one.

Limitations/Points of Improvement

A Limitation of the study was the small sample size, partially due to a relatively high attrition rate. Because of this, outliers were very influential, and in our case even led to non-significant results. After removing them we got a significant result. However, both conditions (fixed and growth) had almost equal numbers regarding the number of participants which facilitates the process of comparing both groups.

Even though the used vignettes for both conditions were good, manipulation through vignettes is difficult, prone to problems in general, and sometimes it is unclear whether the manipulation worked (Sisk et al., 2018). For example, participants did not endorse the fixed

manipulation as they did the growth manipulation, probably because people tend to prefer a growth mindset and it is unpleasant to go along with information that is not favorable to oneself (Macnamara & Rupani, 2017). Other theories (Altmiller et al., 2018) concerning the consequences of feedback differentiate between positive, negative as well as constructive feedback. The fact our study only offered one type (negative feedback) might limit our study results.

The scales we used were related to performance at work, but the tasks of the study were not. Maybe by using tasks that are more related to one's work, we would get stronger effect sizes, and also more control for the work field would allow the use of more specified tasks. While our study did not take the work domain into account, it might be a convenient improvement to define the target population more specifically, for example, by differentiating participants between working in a company, being self-employed, or working a lot with a computer. This could be convenient because impactful feedback or tasks are very difficult to generalize.

Furthermore, 'success expectation' is a general term for various types of self-efficacy. Since self-efficacy is mostly used in Research, it could be convenient to also work with this term, because it might facilitate understanding and connection to other scales and past Research.

Strengths

Mindset has been extensively researched in education (Sisk et al., 2018). However, we were interested in how mindset can be applied to the work environment. In order to investigate this, we relied on vignettes as a valid way to manipulate mindset. As well as the used occupational tasks, our vignettes were based on previous studies and later adapted to fit our concept. To further check for validity of our vignettes, we exposed a few people to our study in advance to make sure the purpose was not transparent and tasks, instructions and items were coherent and understandable. Another strength of our study was that both conditions, growth and fixed mindset, consisted of an approximately equal number of participants. This is convenient for comparing both conditions.

Future Research

For future Research on this topic, it might be helpful to use a better definition of success expectation, including the development of a scale, to ensure a coherent understanding of the term and avoid measuring the concept too broadly. Future Research can also aim to be more field-specific, that is, using tasks that are more related to specific fields and therefore more personally relevant for the participants, and eventually would lead to more reliable results. Also, we only addressed the general public of working people instead of certain types and domain-specific. Considering this, it could be more relevant to be more specific, e.g. investigating multiple types of workers in their work environment and measuring their mindset and success expectations, whether or not they achieved their goals, or whether or not they remain motivated when encountering setbacks.

Also, a more person-specific approach might be convenient. If we look at different types of workers in different domains, we can categorize these to investigate similarities and differences between workers who share a work environment. Since we know that mindset is domain-specific, and people can posses both mindsets in different areas, it might be interesting to investigate if mindset is generally beneficial for all contexts. Further, discovering whether people can be primed with a certain mindset as well as investigating setbacks in real-time and with more career-related issues might be interesting. Since the artificial setbacks we gave participants were not really setbacks for them, investigating more personally relevant setbacks instead might be interesting.

Theoretical and Practical Implications

It seems that people with a growth mindset have more success expectations following the experience of failure. Even though mindset interventions do not seem to benefit all kinds of students, mindset interventions are quite cheap, time-efficient, and accessible (Sisk, 2018). Therefore, it might be worth applying them, especially in jobs with high needs for adaption and flexibility. However, because people with a growth mindset are looking for improvement, maybe constructive feedback would be more beneficial than positive or negative feedback.

Our research was good as an initial approach but it was quite general. For future investigations it might be important to be more specific, for example, take types of work into account, since we did not address a specific type of employment. Also, it is worth considering that mindset interventions might be more fitting for domains where workers possess rather abstract goals. That means they are maybe more effective for workers with a lot of autonomy and control about their work and are able to set their goals themselves, instead of people working with less freedom and external goals (Emmons, 1992).

Conclusion

Based on our study and on previous Research we believe that mindset affects success expectations, and that this relationship is influenced by maladaptive perfectionism, in terms of a growth mindset leading to more success expectations, and maladaptive perfectionism negatively influencing this relationship. With a bigger sample size and some adaptions in the study, more reliable support for our initial hypotheses could be achieved.

Success expectations seem to generally support goal achievement and can be meaningful in the workplace which is an environment where people often set goals and try to improve and develop. Thus, considering that mindset interventions are cheap, time-efficient, and accessible it can be worth trying to implement them.

However, the results should be interpreted carefully because of the small sample size, which makes the results vulnerable to outliers and missing data. So, more data should be gathered in order to actually establish these results. Nevertheless, our results provide a clear direction that further Research can be built upon.

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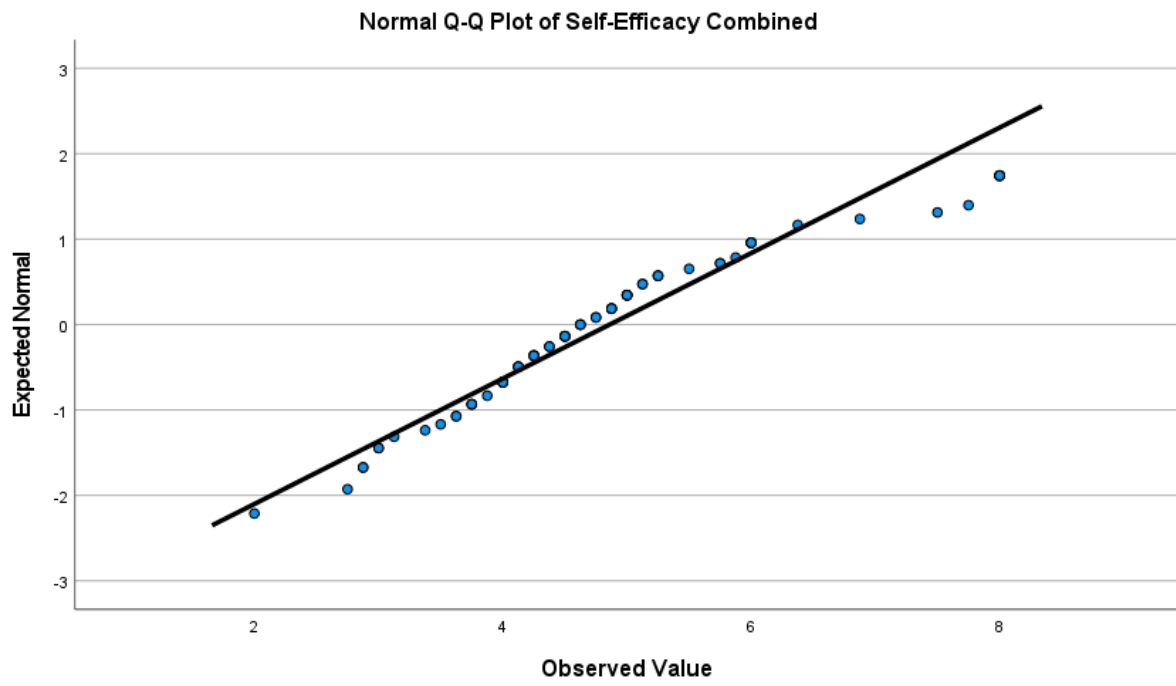
Appendix A

Figure 2.

SOMA (setting/operating/monitoring/achievement) model
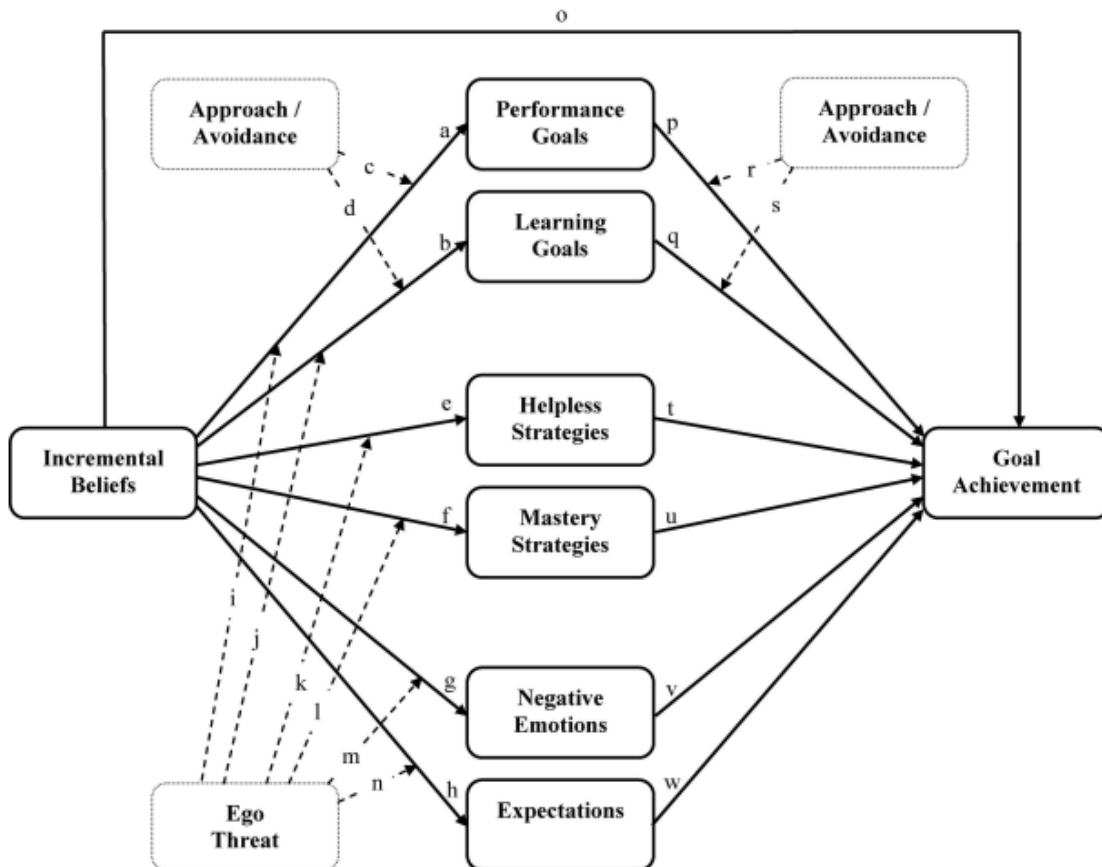
Burnette et al., 2013

Appendix B

QQ-plot for self-efficacy

Appendix C

Boxplot for self-efficacy