Mindsets and Perfectionism in College Students

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Abstract

This study was designed to examine the relationship between mindsets and perfectionism as well as how perfectionist types differ on measures of mindset in college and graduate students between 18 and 25 years of age. Results indicate that mindsets are related to perfectionism. In the total sample (N = 282), discrepancy was negatively related to intelligence growth mindsets (r = -.18). Amongst perfectionists (n = 187), discrepancy was positively related to person fixed mindsets (r = .14) and negatively related to intelligence growth mindsets (r = -.24), whereas high standards were negatively related to intelligence growth mindsets (r = -.15). Adaptive perfectionists had higher scores on measures of intelligence growth mindsets than maladaptive perfectionists (d = 0.47) and lower scores on measures of person fixed mindsets than non-perfectionists (d = 0.44). These findings suggest that mindsets are related to perfectionism in college students; however, the results suggest that college students may experience these relationships in a different way than students outside of higher education.

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Chapter I

Introduction

Perfectionism is a multidimensional personality trait that impacts many people, including college students. College students face countless daily stressors; however, expecting perfection from oneself can add unnecessary stress and pressure. Research indicates that perfectionism is increasing among college-aged students (Curran & Hill, 2019). A recent meta-analysis revealed that between 1989 and 2016, there was a 10% increase in self-oriented perfectionism, a 32% increase in socially prescribed perfectionism, and a 16% increase in other-oriented perfectionism among college students. Although there is ample research surrounding the topic, there is no one universal definition of what constitutes perfectionism, as many frameworks have been developed. For example, some view perfectionism in terms of the high standards that one sets for themselves (e.g., Hamachek, 1978), whereas others take into account a more social view that includes interpersonal features in addition to intrapersonal features (e.g., Hewitt & Flett, 1991). This latter view differs from the former in that people might feel that others expect perfection from them, or they may expect others to be perfect.

Despite differences in opinions of what constitutes perfectionism, there are both adaptive and maladaptive aspects, and both are related to various factors. The maladaptive aspects of perfectionism are associated with academic burnout (e.g., Chang et al., 2016), aggression (e.g., Chester et al., 2015), anxiety (e.g., Mobley et al., 2005; Ortega et al., 2014; Wang et al., 2018), depression (e.g., Mobley et al., 2005; Ortega et al., 2014; Rice & Ashby, 2007; Slaney et al., 2001), neuroticism (Rice et al., 2007), self-harm (e.g., Chester et al., 2015), procrastination (e.g., Kobori et al., 2020; Rice et al.,

2012), and worry (e.g., Slaney et al., 2001). By contrast, the adaptive aspects of perfectionism are associated with conscientiousness (Rice et al., 2007), higher GPA (e.g., Rice & Ashby, 2007; Slaney et al., 2001), increased self-esteem (e.g., Mobley et al., 2005; Ortega et al., 2014; Slaney et al., 2001), and intrinsic motivation (e.g., Chang et al., 2016).

In addition to perfectionism, students' mindsets have significant implications. Much of the research regarding mindsets concerns the topic of intelligence, which makes sense as a learning environment can trigger students' beliefs about intelligence when challenges are perceived (Dweck, 2006). The beliefs students hold surrounding intelligence can impact how they approach learning, which is especially true when difficulties are present. When presented with a challenge, students with a fixed mindset may feel the need to prove their intelligence; whereas, growth mindset students will see it as an opportunity to grow. The former will be more likely to give up, and the latter will be more motivated to problem solve and exert the effort needed (Dweck, 2006). Although this topic is essential for students of all ages, college students are of particular importance because programs are designed to train students with the knowledge and skills necessary to succeed in their future careers. These students will eventually graduate, and no matter what job they acquire, they will be confronted with situations where being able to problem solve, exert effort, and persevere in the face of setbacks will be necessary.

The relationship between mindsets and perfectionism has been studied previously in other populations, particularly in gifted students (e.g., Chan, 2012; Mofield & Parker Peters, 2018; Mofield & Parker Peters, 2019). Research indicates that a relationship

exists between fixed mindsets and maladaptive perfectionism and between growth mindsets and adaptive perfectionism (Chan, 2012; Mofield & Parker Peters, 2018; Mofield & Parker Peters, 2019; Shih, 2011). Only one study concerning mindsets and perfectionism includes college students (i.e., Schroder et al., 2015); however, there is no differentiation between adaptive and maladaptive perfectionism with regard to mindsets. Thus, none of the research regarding mindsets and perfectionism that distinguish between adaptive and maladaptive perfectionism includes a college student population. Therefore, it is imperative to explore whether these relationships exists in college students.

Statement of the Problem

This paper intends to study the relationship between mindsets and perfectionism in college students between 18 and 25 years of age.

Research Questions

1. Is there a relationship between mindsets and perfectionism in college students?
2. Is there a relationship between mindsets and perfectionism amongst perfectionists only?
3. How do the different types of perfectionists differ on measures of mindset?

Definitions of Terms

Adaptive Perfectionism: a type of perfectionism characterized by high standards (Rice & Ashby, 2007; Slaney et al., 2001)

Discrepancy: the maladaptive aspect of perfectionism which comprises "the perceived discrepancy or difference between the standards one has for oneself and one's actual performance" (Slaney et al., 2001, p. 133)

Fixed Mindset: believing that traits such as intelligence, personality, or the kind of person someone is, are fixed and cannot change (Dweck, 2006)

Growth Mindset: believing that traits such as intelligence, personality, or the kind of person someone is, are malleable and can change (Dweck, 2006)

High Standards: an adaptive aspect of perfectionism that differentiates a perfectionist from a non-perfectionist (Rice & Ashby, 2007; Slaney et al., 2001)

Maladaptive Perfectionism: a type of perfectionism characterized by both high standards and discrepancy (Rice & Ashby, 2007; Slaney et al., 2001)

Overview of Study

Chapter I includes the introduction, statement of the problem, research questions, definitions of terms, and an overview of the study. Chapter II will examine growth and fixed mindsets, adaptive and maladaptive perfectionism, and how these constructs relate to each other. Chapter III will include methods. Chapter IV will include data analysis and results. Chapter V will include a summary and discussion of the study as well as conclusions, limitations, and recommendations.

Chapter II

Literature Review

Mindsets

Growth and fixed mindsets are rooted in Dweck's work of implicit theories of intelligence (Dweck, 1999; Dweck, 2006). In the early days of this research, these two mindsets were instead referred to as incremental and entity theory. When an individual holds a growth mindset or incremental view, they believe that traits such as intelligence are malleable and can be developed with effort. Opposite to this are fixed mindsets or entity views; these individuals instead believe that traits are innate and fixed. Mindsets are domain-specific, meaning that individuals might believe, for instance, that they have a certain amount of intelligence while also believing that their core personality can change. Moreover, mindsets either can be personal and be about oneself, or they can be global and directed towards others. For example, an individual might hold a personal growth mindset and believe that their intelligence can grow; whereas, this same individual may believe that another person's intelligence cannot change. Most mindset research focuses on intelligence; however, other domains of mindsets exist and have been studied, such as personality and morality (Dweck, 1999; Dweck, 2006).

Mindsets have far-reaching implications (Dweck, 1999; Dweck, 2006). For instance, the mindsets that students hold impact how they view and react to challenges. Ultimately, students with a fixed mindset want to appear intelligent, and as a result, these individuals see mistakes as an indicator of their lack of intelligence. Whereas, those with a growth mindset do not appraise setbacks as a failure, but they see obstacles as an opportunity to grow and learn. Those possessing a growth mindset do not believe that

they were born with a certain amount of intelligence that they then need to prove. Moreover, those who possess a growth mindset are less likely to give up when things prove challenging; the opposite is true for those who hold a fixed mindset. The idea of exerting effort also differs between the two mindsets. For example, those with a fixed mindset believe that if they have to put forth much effort, they must not have the capacity to do what they have set out to accomplish. Instead, those with a growth mindset believe they are growing and learning when they exert effort on a task. The combined implications regarding fixed mindsets can result in students not reaching their true potential due to the beliefs that limit their ability to do what they need to do to keep progressing. The good news is that mindsets are malleable, and people who hold fixed mindsets can be nudged in the direction of growth mindsets given the right environment (Dweck, 1999; Dweck, 2006).

Perfectionism

Perfectionism seems to be a sought-after quality in a college setting, where high performance is greatly encouraged, if not demanded. Bieling et al. (2004) state that "in the larger culture outside of clinical and personality psychology, perfectionism is often tolerated, perhaps encouraged, due to the perception that perfection is associated with important rewards in domains such as sports, business, science, and academics" (p. 1374). There appear to be differences amongst the general population regarding how perfectionism is viewed and regarded. Some may strive towards perfection and hold this pursuit in high esteem, while failing to recognize that a potential maladaptive, dark side exists. However, other individuals may believe that perfectionism is a weakness. For

example, Indeed (2020) lists perfectionism as a possible answer that individuals can give when asked about their greatest weakness during job interviews.

Even the scientific community disagrees on how to best define perfectionism and whether it can be adaptive. Perfectionism is a complex construct that has been defined in many different ways. Different theories regarding perfectionism exist and, depending on the researcher, what specifically constitutes perfectionism varies. Although no universal definition exists, setting high standards appears consistent across theoretical frameworks (e.g., Frost et al., 1990; Hamachek, 1978; Hewitt & Flett, 1991; Slaney et al., 2001). Despite these differences of opinion, some researchers agree that perfectionism can be both adaptive and maladaptive. Hamachek (1978) was one of the first to suggest the possibility that it could be adaptive. He believed that two types of perfectionism exist: normal and neurotic. Normal perfectionists set high standards for themselves but are realistic in their pursuits and recognize their limitations. These adaptive perfectionists are motivated by the desire to improve and the satisfaction of completing a task well. Conversely, neurotic perfectionists tend to hold unrealistic expectations for themselves and are rigid in their impossible standards (i.e., always needing to do better). These maladaptive perfectionists are motivated by a fear of failure and are unable to enjoy their accomplishments.

Since Hamachek (1978), perfectionism research has continued to evolve and develop. Today, there are a variety of instruments used to measure the different facets of perfectionism. For instance, Frost et al. (1990) developed the Multidimensional Perfectionism Scale (FMPS). This 35-item scale measures six dimensions of

perfectionism: concern over mistakes, personal standards, parental expectations, parental criticism, doubts about actions, and organization. Past research utilizing this scale to study mindsets and perfectionism (i.e., Mofield & Parker Peters, 2018; Mofield & Parker Peters, 2019; Shih, 2011) has measured adaptive perfectionism (positive strivings perfectionism) with both personal standards and organization. Conversely, maladaptive perfectionism (evaluative concerns perfectionism) can be measured with concern over mistakes and doubts about action. Furthermore, the Multidimensional Perfectionism Scale (MPS), developed by Hewitt and Flett (1991), contains 45-items that measure three dimensions of perfectionism: self-oriented, other-oriented, and socially prescribed. Self-oriented perfectionists have high standards and expect perfection from themselves. However, other-oriented perfectionists direct this demand towards others and expect them to be perfect. Quite the reverse, socially prescribed perfectionists perceive that others expect perfection from them. This framework of perfectionism differs from other commonly used measures because it considers social and personal factors. Other measures focus primarily on personal factors (Hewitt & Flett, 1991) and are similar to self-oriented perfectionism. Although the scale is multidimensional in nature, the multidimensional aspect considered does not relate to its adaptive or maladaptive qualities but instead refers to the dimension by which it is experienced. For, under Hewitt and Flett's framework, it is assumed that perfectionism is not adaptive. Hewitt's Perfectionism and Psychopathology Lab (n.d.) at the University of British Columbia states:

> Most researchers agree that perfectionism is neither adaptive nor healthy and that any benefits associated with perfectionism pale in comparison to its physiological

> and psychological costs. Additionally, though some writers have talked about adaptive and healthy forms of perfectionism, in the last decade it has become clear that needing to be excellent and trying you [*sic*] best is different from needing to be or needing to appear to be perfect (para. 1).

Simply put, what others regard as adaptive perfectionism, Flett and Hewitt (2006) would regard as similar to conscientiousness. Moreover, they believe that perfectionism and conscientiousness should remain separate constructs. Lastly, Slaney et al. (2001) developed the Almost Perfect Scale-Revised (APS-R). This 23-item scale consists of three subscales measuring high standards, discrepancy, and order. Both high standards and order measure adaptive aspects of perfectionism, while discrepancy measures perfectionism's maladaptive element. Rice and Ashby (2007) later specified cut-off scores on the high standards and discrepancy subscales for classifying individuals as adaptive, maladaptive, or non-perfectionists. They concluded that order should be excluded from the classification.

Differing opinions exist regarding how to best classify individuals as perfectionists. For instance, some would advocate for a more groups-based approach and classify perfectionists as either healthy or unhealthy (e.g., Stoeber & Otto. 2006); whereas, others would argue for a more dimensional approach that includes terms such as perfectionistic concerns and perfectionistic strivings (e.g., Frost et al., 1993; Stoeber & Otto. 2006). Despite these subtle differences, for conciseness in the present paper, terms appearing in the literature to describe different dimensions of perfectionism such as perfectionistic strivings perfectionism and healthy perfectionism will be referred to as adaptive perfectionism, and terms such as perfectionistic concerns perfectionism and unhealthy perfectionism will be referred to as maladaptive perfectionism.

As important as it is to understand distinctions between various perfectionism types and the theories that guide these classifications, it is also important to explore some of the possible factors associated with differing types of perfectionists. Current research suggests that perfectionism is related to various factors. In general, perfectionism is related to anxiety (Fletcher et al., 2019), depression (Fletcher et al., 2019), emotional regulation difficulties (Fletcher et al., 2019), happiness (Suh et al., 2017), self-esteem (Elion et al., 2012; Miegel et al., 2020), life satisfaction (Suh et al., 2017), meaning in life (Suh et al., 2017), insomnia (Akram et al., 2015), and obsessive-compulsive disorder (OCD; Miegel et al., 2020). More specifically, adaptive perfectionism is associated with happiness (Suh et al., 2017), higher self-esteem (Elion et al., 2012), life satisfaction (Suh et al., 2017), and a sense of meaning in life (Suh et al., 2017). Conversely, maladaptive perfectionism is associated with anxiety (Fletcher et al., 2019), depression (Fletcher et al., 2019), emotional regulation difficulties (Fletcher et al., 2019), lower self-esteem (Miegel et al., 2020), OCD (Miegel et al., 2020), and searching for life's meaning (Suh et al., 2017). It is important to note that these are not exhaustive lists nor a complete overview of the literature, and other research likely suggests different possible associations. For example, while Fletcher et al. (2019) reported that maladaptive perfectionism was related to depression, others have noted that maladaptive perfectionists do not differ from non-perfectionists in this regard. For instance, in a sample of college students, Elion et al. (2012) found that adaptive perfectionists had the lowest depression scores compared to both maladaptive perfectionists and non-perfectionists. In this sample, both maladaptive perfectionists and non-perfectionists had approximately the same mean levels of

depression. Moreover, the cited studies vary concerning sample characteristics. For instance, Fletcher et al. (2019) and Miegel et al. (2020) included participants with psychopathology. Although each of the studies mentioned above contains an adult population, only some are concerned with college students (i.e., Elion et al., 2012; Suh et al., 2017), and even those include some non-traditional aged students. However, a complete overview of what differing perfectionists' types are related to is outside the scope of this study.

Of concern, there are differing opinions and a lack of consistency regarding what to include when studying various aspects of perfectionism. For instance, utilizing the APS-R, some researchers measure maladaptive perfectionism using the discrepancy subscale solely without accounting for the degree of high standards that one sets for themselves (e.g., Fletcher et al., 2019). This approach differs from Rice and Ashby's (2007) view of classifying individuals as adaptive perfectionists and maladaptive perfectionists based on cut-off scores from both the high standards and discrepancy subscale. To be classified as a maladaptive perfectionist, one must have a certain degree of high standards. These differences in research designs create a unique challenge and further complicate the study of perfectionism because two studies might appear to reveal the same findings when, in reality, they could be measuring slightly different factors.

Mindsets and Perfectionism

Previous research concerning mindsets and perfectionism have utilized either the FMPS (e.g., Mofield & Parker Peters, 2018; Mofield & Parker Peters, 2019; Schroder et al., 2015; Shih, 2011) or the APS-R (e.g., Chan, 2012) to measure perfectionism. Except

for Schroder et al. (2015), only intelligence mindsets have been studied in conjunction with perfectionism. Both of these constructs have been studied together in the United States (e.g., Mofield & Parker Peters, 2018; Mofield & Parker Peters, 2019) and in Asia (e.g., Chan, 2012; Shih, 2011) and have included gifted students (e.g., Chan, 2012; Mofield & Parker Peters, 2018; Mofield & Parker Peters, 2019), typical students (e.g., Mofield & Parker Peters, 2018; Shih, 2011), and advanced students (e.g., Mofield & Parker Peters, 2018). Primarily, prior research has consisted of middle school students (e.g., Chan, 2012; Mofield & Parker Peters, 2018; Mofield & Parker Peters, 2019; Shih, 2011); however, Chan (2012) extended their sample to include high school students. Furthermore, Schroder et al. sampled undergraduate students; however, these researchers only include a total perfectionism score and do not specifically study particular perfectionism types with regard to mindsets.

Past research supports the idea that a relationship exists between adaptive perfectionism and growth mindsets and between maladaptive perfectionism and fixed mindsets (Mofield & Parker Peters, 2018; Mofield & Parker Peters, 2019; Shih, 2011). Furthermore, intelligence mindsets have been shown to predict scores on perfectionism measures (Mofield & Parker Peters, 2018; Mofield & Parker Peters, 2019). For instance, growth mindsets are a predictor of adaptive perfectionism, while fixed mindsets are a predictor of maladaptive perfectionism. Finally, perfectionism types have been shown to differ on measures of mindset (Chan, 2012). For example, Chan (2012) found that maladaptive perfectionists were most likely to have fixed mindsets compared to both adaptive perfectionists and non-perfectionists. Although not significant, adaptive

perfectionists were more likely to have fixed mindsets compared to non-perfectionists. Conversely, adaptive perfectionists were the most likely to have growth mindsets and scored significantly higher on growth mindset measures than the non-perfectionists. Although this is the only prior study that utilizes the APS-R concerning mindsets and perfectionism, it is essential to note that the cut-off scores for grouping participants into perfectionists' types differed from the present study. For example, Chan set the cut-off scores for high standards at 23 and discrepancy at 33 instead of 42 for both subscales used in the present study.

Schroder et al. (2015) conducted a study of mindsets and perfectionism in college students. Of note, this study does not look specifically at the differences between adaptive and maladaptive perfectionists with regard to mindsets. Schroder et al. (2015) claim that maladaptive perfectionism is related to a variety of entity theories. However, this claim appears to be flawed and is not supported, given this study utilizes a total perfectionism score from the FMPS. Furthermore, not all of the subscales in this perfectionism instrument measure the maladaptive aspects of perfectionism. For instance, the personal standards and organization subscale can be combined to measure what is known as positive strivings perfectionism (adaptive perfectionism). So, claiming that maladaptive perfectionism is related to any construct based on the total perfectionism score does not align with previous research regarding mindsets and perfectionism that utilize FMPS (i.e., Mofield & Parker Peters, 2018; Mofield & Parker Peters, 2019; Shih, 2011). With this in mind, Schroder et al. reported that FMPS scores were negatively related to incremental theories of anxiety and intelligence.

So, while some research exists for college students concerning mindsets and perfectionism, past research does not explicitly examine how adaptive and maladaptive perfectionists differ regarding mindsets and how these two constructs relate within a college student population. Therefore, the purpose of the present study is to address this research gap that exists in the literature.

Chapter III

Method

Participants

Participants were required to attend a college or university located within the United States and be between 18 and 25 years of age to be eligible for participation. Three-hundred and twenty-one individuals consented to be in the study; six individuals did not proceed any further than the consent form. Of the remaining 315, three participants fell outside of the specified age range; therefore, their data were not included in further analyses. An additional 29 participants were excluded from the sample because they were missing one or more complete questionnaires. Furthermore, one participant was excluded from the sample due to selecting the same response to every question. As a result, the final sample consisted of 282 participants.

Table 1 shows the frequency of the sample's demographic characteristics, which include age, gender, race/ethnicity, current educational level, and cumulative grade point average (GPA). Of the 144 maladaptive perfectionists, one declined to specify their ethnicity/race; of the 43 adaptive perfectionists, one declined to specify their gender; of the 95 non-perfectionists, two declined to provide their GPA.

Procedure

The researcher received approval for this study from their university's Institutional Review Board. Professors from a liberal arts university were contacted and offered the opportunity for their students to participate in this research study. If a professor expressed interest, they were given a choice between their students participating during class or outside of class.

Table 1

Demographic Characteristics of Participants

Variable	Maladaptive Perfectionists		Adaptive Perfectionists		Non-Perfectionists	
	n	%	*n*	%	*n*	%
Age						
18	17	11.8	2	4.7	10	10.5
19	30	20.8	8	18.6	22	23.2
20	43	29.9	12	27.9	23	24.2
21	24	16.7	11	25.6	18	18.9
22	17	11.8	6	14.0	15	15.8
23	9	6.3	2	4.7	2	2.1
24	3	2.1			2	2.1
25	1	0.7	2	4.7	3	3.2
Gender						
Male	30	20.8	8	18.6	24	25.3
Female	114	79.2	34	79.1	71	74.7
Race/Ethnicity						
Black/African American	17	11.8	7	16.3	18	18.9
Hispanic/Latinx	20	13.9	5	11.6	12	12.6
American Indian/Alaska Native	3	2.1	1	2.3	3	3.2
Asian	10	6.9			8	8.4
White	75	52.1	24	55.8	35	36.8
Other/Mixed	18	12.5	6	14.0	19	20.0
Education Level						
Freshman	37	25.7	5	11.6	23	24.2
Sophomore	30	20.8	11	25.6	19	20.0
Junior	37	25.7	12	27.9	27	28.4
Senior	27	18.8	13	30.2	20	21.1
5th year or more senior	6	4.2			5	5.3
Graduate student	7	4.9	2	4.7	1	1.1
Cumulative GPA						
4.0-3.5	82	56.9	23	53.5	32	33.7
3.5-3.0	35	24.3	16	37.2	25	26.3
3.0-2.5	18	12.5	4	9.3	21	22.1
2.5-2.0	8	5.6			9	9.5
Less than 2.0	1	0.7			6	6.3

If class time was used, the researcher would read a prewritten announcement script that explained the study's purpose and what was required for participation. The researcher explained that students would receive an email containing the survey link. This email contained a solicitation script. Students were told that their participation would last approximately 10 minutes, that all information was confidential, and that they were free to discontinue at any point. Before participating, students were allowed to ask questions. If professors expressed interest but preferred not to utilize class time, the same solicitation script was provided to be forwarded to their students. In addition to contacting professors, the researcher utilized social media and text messaging as a platform to recruit participants utilizing a solicitation script. All students received the same solicitation script that included the research topic and who may be eligible for participation. Students were then encouraged to share the link with other college students they may know.

Because snowball sampling was used to recruit participants, the location for participation differed among participants. For instance, some completed the survey during class, whereas others completed the survey from the comfort of wherever they were. Due to COVID-19 forcing classes to move from an in-person environment to a virtual platform, some students who completed the survey during class were doing so from their home or dorm room.

The survey was constructed using Qualtrics. The first page consisted of informed consent. After consenting to be in the study, participants answered demographic questions before completing the different measures. The order of the surveys was

randomized for each participant in order to reduce order effects. Age was the only required question; if a participant was under the age of 18, they would be redirected to the final page that thanked them for their participation.

Measures

Growth Mindset Scale

Intelligence mindsets were measured using Dweck's Growth Mindset Scale (GMS; Dweck, 1999, as cited in Stanford SPARQ; Dweck et al., 1995). This domain-specific mindset measure consists of three items using a 6-point Likert scale ranging from 1 (strongly agree) to 6 (strongly disagree). Participants are asked to rate how much they agree or disagree with a given statement concerning the fixedness of their own intelligence (e.g., "You have a certain amount of intelligence, and you can't really do much to change it;" Cronbach's α = .94 to .98). There are no distinct subscales that allow for measuring both a growth and a fixed mindset; therefore, only a growth mindset score is calculated. In the present study, the three GMS items showed high internal consistency (Cronbach's α = .917), which is consistent with what Dweck et al. (1995) reported.

"Kind of Person" Implicit Theory Scale

The "Kind of Person" Implicit Theory Scale (KOPITS) was used to measure mindsets about whether or not the important parts of a person can change (Dweck, 1999, as cited in Stanford SPARQ; Levy et al., 1998). Of note, some researchers have instead referred to this scale as the Implicit Person Theory Scale (e.g., Devloo et al., 2011; Mathur et al., 2013). This domain-general mindset measure contains eight items asking participants to indicate how much they agree or disagree with a given statement using a

6-point Likert scale ranging from 1 (strongly agree) to 6 (strongly disagree). Of the eight items, half measure a fixed mindset (e.g., "The kind of person someone is, is something very basic about them and it can't be changed very much"). In contrast, the other half measure a growth mindset (e.g., "Everyone, no matter who they are, can significantly change their basic characteristics"). Typically, only the growth mindset subscale is reversed-scored to create a total growth mindset score; however, for the purpose of this study, both subscales were reversed-scored to allow for distinct growth and fixed mindset scores. Levy and Dweck (1997; as cited in Levy et al., 1998) reported Cronbach's alpha of .93 to .95 for the full scale; moreover, Levy et al. (1998) reported Cronbach's alpha of .93 for the full scale. For the present study, Cronbach's alpha for the fixed subscale was .855, and Cronbach's alpha for the growth subscale was .838.

Almost Perfect Scale-Revised

Perfectionism was measured using the Almost Perfect Scale-Revised (APS-R; Slaney et al., 2001). This measure consists of 23 items that assess both the positive and negative aspects of perfectionism. Of these, seven items measure high standards (e.g., "I have a strong need to strive for excellence;" Cronbach's $\alpha = .85$), four items measure order (e.g., "Neatness is important to me;" Cronbach's $\alpha = .82$), and 12 items measure discrepancy (e.g., "My performance rarely measures up to my standards;" Cronbach's $\alpha = .91$). Participants are asked to rate how much they agree or disagree with a given statement using a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). For the purpose of the present study and to allow for consistency with other measures used, strongly agree was listed as the first option, and strongly disagree was

listed as the last option. The present study showed good internal reliability for high standards (Cronbach's α = .872), order (Cronbach's α = .792), and discrepancy (Cronbach's α = .921).

Chapter IV

Results

Descriptive Statistics

Table 2 displays descriptive statistics and correlations for all study variables for the total sample ($N = 282$). Scores on high standards, order, and discrepancy were calculated by separately summing each subscale. Participants' scores ranged from 15 to 49 for high standards, 10 to 28 for order, and 16 to 84 for discrepancy. Conversely, scores on the measures of mindsets were calculated using the average of participants' responses (Stanford SPARQ). Participants' scores ranged from 1 to 6 for all mindset measures.

One participant was missing data on the KOPITS growth mindset subscale. Since this participant had three of the four responses, the average of those responses was inputted in place of the missing data. Next, the remaining three responses and the inputted response were averaged to create a growth mindset subscale score.

Students were classified into one of three perfectionism groups: adaptive perfectionists, maladaptive perfectionists, and non-perfectionists. These were based on cutoff scores on the high standards and discrepancy subscales from the APS-R (Rice & Ashby, 2007). The high standards subscale differentiated perfectionists from non-perfectionists; those scoring below 42 were classified as non-perfectionists while those scoring 42 and above were classified as a perfectionist. The discrepancy subscale differentiated perfectionists as either adaptive or maladaptive; perfectionists scoring below 42 were classified as adaptive while perfectionists scoring 42 and above were classified as maladaptive. This classifying method (i.e., Rice & Ashby, 2007) resulted in 43 adaptive perfectionists, 144 maladaptive perfectionists, and 95 non-perfectionists.

Table 2

Descriptive Statistics and Correlations for Total Sample (N = 282)

Variable	*M*	*SD*	1	2	3	4	5	6	7
1. Age	20.35	1.57	—						
2. High standards	42.57	5.75	-.01	—					
3. Order	22.35	3.85	.04	.51††	—				
4. Discrepancy	53.93	15.01	-.06	.12†	.07	—			
5. GMS	4.27	1.24	.08	-.05	.11*	-.18**	—		
6. KOPITS growth	4.15	0.93	.03	.06	.08	.01	.24††	—	
7. KOPITS fixed	3.04	1.05	-.07	-.03	-.00	.06	-.44††	-.61††	—

*$p < .05$, one-tailed. **$p < .01$, one-tailed. †$p < .05$, two-tailed. ††$p < .001$, two-tailed.

A series of univariate ANOVAs were conducted to see whether differences due to demographic characteristics on perfectionism and mindset measures existed. There were no significant differences on any measures that were due to age. However, there were differences that were due to gender, ethnicity/race, education level, and cumulative GPA.

Gender

For order, the omnibus test of the effect of gender was significant, $F(1, 279) = 5.38$, $p = .021$, partial $\eta^2 = .02$. Females ($M = 22.63$, $SD = 3.66$, $d = 0.32$) scored significantly higher than males ($M = 21.35$, $SD = 4.35$) on order.

Ethnicity/Race

For GMS, the omnibus test of the effect of ethnicity/race was significant, $F(5, 275) = 2.30$, $p = .045$, partial $\eta^2 = .04$. Tukey's post hoc analysis revealed that Hispanic/Latinxs ($M = 4.74$, $SD = 1.09$, $d = 0.99$) scored significantly higher on GMS than did Asians ($M = 3.63$, $SD = 1.14$). For KOPITS growth, the omnibus test of the effect of ethnicity/race was significant, $F(5, 275) = 2.79$, $p = .018$, partial $\eta^2 = .05$.

Tukey's post hoc analysis did not reveal any significant differences between any race. For KOPITS fixed, the omnibus test of the effect of ethnicity/race was significant, $F(5, 275) = 2.59$, $p = .026$, partial $\eta^2 = .04$. Tukey's post hoc analysis revealed that Asians ($M = 3.69$, $SD = 0.97$, $d = 1.00$) scored significantly higher than Hispanic/Latinx ($M = 2.72$, $SD = 0.98$) on the KOPITS fixed subscale.

Education Level

For order, the omnibus test of the effect of education level was significant, $F(5, 276) = 2.30$, $p = .045$, partial $\eta^2 = .04$. Tukey's post hoc analysis revealed that graduate students ($M = 25.80$, $SD = 1.99$) scored significantly higher on order than both freshman ($M = 22.00$, $SD = 3.76$, $d = 1.26$) and sophomores ($M = 21.97$, $SD = 4.18$, $d = 1.17$).

Cumulative GPA

For high standards, the omnibus test of the effect of GPA was significant, $F(4, 275) = 6.35$, $p = .000$, partial $\eta^2 = .08$. Tukey's post hoc analysis revealed that 4.0-3.5 ($M = 44.21$, $SD = 4.26$) scored significantly higher on high standards than both 3.5-3.0 ($M = 41.74$, $SD = 6.93$, $d = 0.43$) and 3.0-2.5 ($M = 40.42$, $SD = 6.14$, $d = 0.72$) did. For discrepancy, equal variance was not assumed. The omnibus test of the effect of GPA was significant, Welch's $F(4, 41.35) = 11.70$, $p = .000$, est. $\omega^2 = .13$. Games-Howell post hoc analysis revealed that 4.0-3.5 ($M = 52.26$, $SD = 14.92$) scored significantly lower on discrepancy than both 2.5-2.0 ($M = 63.47$, $SD = 10.28$, $d = 0.87$) and less than 2.0 ($M = 65.57$, $SD = 5.06$, $d = 1.19$) did. Similarly, 3.5-3.0 ($M = 51.59$, $SD = 15.43$) scored significantly lower on discrepancy than both 2.5-2.0 ($M = 63.47$, $SD = 10.28$, $d = 0.91$) and less than 2.0 ($M = 65.57$, $SD = 5.06$, $d = 1.22$). For KOPITS fixed, the omnibus test

of the effect of GPA was significant, $F(4, 275) = 2.55$, $p = .040$, partial $\eta^2 = .04$. Tukey's post hoc analysis revealed no significant differences between any GPAs.

Correlational Analysis of Adaptive and Maladaptive Perfectionists

Table 3 shows the descriptive statistics and correlations for adaptive perfectionists ($n = 43$) and maladaptive perfectionists ($n = 144$) on mindset and perfectionism measures. Since a goal of this research was to focus on the relationships between perfectionists and mindsets, non-perfectionists were excluded to allow a more detailed examination and to decrease error in the data analysis.

Table 3

Descriptive Statistics and Correlations for Perfectionism and Mindsets (n = 187)

Variable	*M*	*SD*	1	2	3	4	5
1. High standards	45.71	2.20	—				
2. Discrepancy	54.70	16.13	.24††	—			
3. GMS	4.27	1.27	-.15*	-.24**	—		
4. KOPITS growth	4.19	0.98	.01	-.05	.20†	—	
5. KOPITS fixed	2.99	1.09	.08	.14*	-.40††	-.59††	—

Note. Non-perfectionists ($n = 95$) are excluded from this analysis.

*$p < .05$, one-tailed. **$p < .001$, one-tailed. †$p < .01$, two-tailed. ††$p < .001$, two-tailed.

Mean Differences of Mindsets Among Perfectionist Types

A series of univariate ANOVAs were conducted to examine how the perfectionist types differed on measures of mindset. Table 4 displays mean mindset scores for each group. Tukey's post hoc analysis revealed that there was a difference between adaptive perfectionists and maladaptive perfectionists on GMS scores ($d = 0.47$). Additionally,

there was a difference between adaptive perfectionists and non-perfectionists on the KOPITS fixed subscale ($d = 0.44$). However, no significant differences emerged among the different perfectionist types on KOPITS growth subscale.

Table 4

Comparisons of Mean Differences of Mindset Scores for Perfectionist Types

Measure	Maladaptive Perfectionists		Adaptive Perfectionists		Non-perfectionists		$F(2, 279)$	η^2
	M	*SD*	*M*	*SD*	*M*	*SD*		
GMS	4.14	1.29	4.71	1.10	4.25	1.21	3.44*	.02
KOPITS growth	4.15	0.95	4.33	1.08	4.07	0.82	1.16	.01
KOPITS fixed	3.08	1.05	2.67	1.15	3.14	0.98	3.30*	.02

*$p < .05$.

Chapter V

Summary and Discussion

This study attempted to address the gap regarding the relationship between mindsets and perfectionism among college students. Past research has primarily consisted of other age ranges (i.e., Chan, 2012; Mofield & Parker Peters, 2018; Mofield & Parker Peters, 2019; Shih, 2011). The only study that includes college students (i.e., Schroder et al., 2015) does not provide an in-depth analysis regarding both the adaptive and maladaptive nature of perfectionism concerning mindsets. The present findings provide support that a relationship between mindsets and perfectionism extends to university students. Furthermore, a variety of demographic variables seem to show differences in mindset and perfectionism. Finally, the findings suggest that different types of perfectionists vary in terms of their mindsets.

Demographic Differences

It appears that a variety of demographic characteristics such as gender, education level, ethnicity/race, and GPA account for differences in perfectionism and mindsets. Concerning gender, females had higher scores than males on order. Likewise, graduate students had higher scores on order than both freshman and sophomores. Regarding students' ethnicity/race, there were differences between Hispanic/Latinxs' and Asians' scores on measures of mindsets. For instance, Hispanic/Latinx students were more likely to have intelligence growth mindsets than Asian students; however, Asian students were more likely to have person fixed mindsets than Hispanic/Latinx students. Finally, GPA was related to differences in perfectionism scores. For example, students with GPAs of 4.0-3.5 had higher standards than those with GPAs ranging from 3.5 and 2.5.

Furthermore, individuals with GPAs of 2.5 and below had higher discrepancy scores than those with GPAs at or above a 3.0.

Relationship Between Mindsets and Perfectionism

Findings from the present study indicate that various types of mindsets relate differently to aspects of perfectionism. Only one relationship emerged amongst the total sample; however, additional relationships emerged amongst perfectionists.

Amongst Total Sample

When analyzing the entire sample, only one relationship between mindsets and perfectionism emerged. The results revealed a negative relationship between discrepancy and intelligence growth mindsets, and no relationships emerged for person mindsets. The present findings both align and differ from previous studies. For example, past research using the same perfectionism measure has found a similar, though nonsignificant, relationship among middle and high school students concerning growth mindsets (Chan, 2012). Furthermore, since the present study used one measure for intelligence mindsets, those with lower scores on the measure would indicate a more considerable degree of fixed mindsets. For example, Dweck et al. (1995) specified that scores of 3.0 and below indicate a fixed mindset. However, it is essential to note that the sample tended to have higher growth mindsets. With this in mind, the present findings potentially align with Chan's (2012) findings that a fixed mindset is positively related to discrepancy; albeit, some caution should be taken concerning this implication. Although some similarities exist, the present findings differ from past research with regard to high standards. The present research revealed no relationship between high standards and mindset. These

findings differ from Chan, who found that both types of mindsets were positively related to high standards.

Research utilizing other perfectionism measures such as FMPS reveals similar findings found in the present study concerning discrepancy. For instance, past research supports that the maladaptive aspects of perfectionism (i.e., concern over mistakes and doubts about action) are positively related to an intelligence fixed mindset (Mofield & Parker Peters, 2018; Mofield & Parker Peters, 2019; Shih, 2011); whereas the maladaptive aspects of perfectionism are both negatively related (Mofield & Parker Peters, 2018; Mofield & Parker Peters, 2019) and positively related (Shih, 2011) to growth mindsets. Thus, except for Shih (2011), the present findings regarding the maladaptive aspects align with prior research that utilizes a different framework for perfectionism. Again, the present findings that reveal no relationship between the adaptive component of perfectionism and mindsets do not align with prior research that indicates that different relationships exist. For example, prior research suggests that the adaptive aspects of perfectionism (i.e., personal standards and organization) are positively related to an intelligence growth mindset (Mofield & Parker Peters, 2018; Mofield & Parker Peters, 2019; Shih, 2011) and negatively related to a fixed mindset (Shih, 2011).

Amongst Perfectionists

Previous research on mindsets and perfectionism does not analyze how perfectionists explicitly experience these relationships. In the total sample, there was an inverse relationship between discrepancy and intelligence growth mindsets. This

relationship was strengthened when analyzing perfectionists only. Interestingly enough, in the present study, both the adaptive and maladaptive aspects of perfectionism are negatively related to an intelligence growth mindset. Concerning the adaptive aspect of perfectionism, other studies that include non-perfectionists (i.e., Chan, 2012; Mofield & Parker Peters, 2018; Mofield & Parker Peters, 2019; Shih, 2011) reveal the opposite relationship. Hence, the current study is the first to indicate this particular relationship between perfectionists and mindsets.

This study was the first to consider person mindsets and how they relate to perfectionism. While no relationships emerged amongst the total population, a positive relationship appeared between discrepancy and person fixed mindsets upon closer examination of perfectionists. Although not studied previously, these findings align with the research regarding intelligence fixed mindsets and how they relate to perfectionism's maladaptive elements (Chan, 2012; Mofield & Parker Peters, 2018; Mofield & Parker Peters, 2019; Shih, 2011).

Differences of Mindsets Among Various Perfectionist Types

The present results revealed that adaptive perfectionists had higher scores on measures of intelligence growth mindsets than maladaptive perfectionists and had lower scores on measures of person fixed mindsets than non-perfectionists. No significant group differences emerged for person growth mindsets. Only one prior study compared the mean score differences between perfectionist types and mindsets (i.e., Chan, 2012). However, these findings slightly differ. For instance, Chan (2012) reported that adaptive perfectionists had higher scores on measures of growth mindset compared to non-

perfectionists. While Chan did find that adaptive perfectionists scored higher than maladaptive perfectionists on a growth mindset measure, these differences were not significant. Furthermore, the present study found that adaptive perfectionists and non-perfectionists differed regarding person fixed mindsets. When Chan compared the same groups on intelligence fixed mindsets, there were no differences, and the scores were virtually identical; instead, the difference existed between those types and maladaptive perfectionists, with maladaptive perfectionists scoring the highest.

Implications

These findings from the present study provide support that perfectionism in college students is related to negative outcomes (i.e., fixed mindsets). While the inverse relationship between the maladaptive aspect of perfectionism and growth mindsets are consistent with past findings (i.e., Mofield & Parker Peters, 2018; Mofield & Parker Peters, 2019), the inverse relationship between the adaptive aspect of perfectionism and growth mindsets (i.e., amongst perfectionists) presents a unique finding not found in the literature that could imply that perfectionistic college students experience mindsets and perfectionism differentially than younger students. Researchers (e.g., Chan, 2012) have suggested that future research consider implementing a growth mindset intervention for maladaptive perfectionists; however, the results from the present study do not support a need for such an intervention in this context in a college student population.

Conclusions

1. Findings suggest that a relationship between mindsets and perfectionism exists. In the total sample, only the maladaptive aspect of perfectionism was negatively related to intelligence growth mindsets. No additional relationships emerged amidst the total sample.

2. Amongst perfectionists, mindsets and perfectionism were more strongly related to each other than in the total sample. Both the adaptive and maladaptive aspects of perfectionism were negatively related to intelligence growth mindsets. While discrepancy and intelligence growth mindsets were negatively related in the total sample, this relationship was slightly strengthened amid perfectionists. Furthermore, person fixed mindsets were positively related to the maladaptive aspect of perfectionism.

3. Perfectionist types differed on two of the three measures of mindset. Adaptive perfectionists scored higher than maladaptive perfectionists on the intelligence growth mindset measure and lower than non-perfectionists on the measure for person fixed mindsets.

Limitations

1. The results from the present study may be hard to generalize due to the make-up of the sample. Approximately 78% of the sample consisted of females. Furthermore, there is a disproportionate number of maladaptive perfectionists. For instance, approximately 51% of the sample consisted of maladaptive perfectionists, while only about 15% were adaptive. Moreover, the sample included college and graduate students between 18 and 25 years of age; therefore, these results should not be generalized to college students outside of this age range. Similarly, only college students were sampled; the results may not extend to young adults not enrolled in college. Of note, only a small handful of graduate students were included in the sample, making up less than 4% of the sample. Thus, the current results could likely differ if graduate or non-traditional student populations were explicitly studied. Therefore, caution should be made when interpreting these results in light of the study's sample.

2. Since convenience sampling was used to select participants and individuals self-selected to participate in the research, the results may not reflect the true nature of the intended population from which the sample was taken.

3. Caution should be made when interpreting the results regarding mindset. According to Dweck et al. (1995), mindset scores on the GMS of 4.0 and above signify a growth mindset. In the present sample, adaptive perfectionists, maladaptive perfectionists, and non-perfectionists all have a mean score above 4.0. This specification implies that the total sample consisted of predominantly growth-minded individuals in regard to intelligence.

4. This study relied on self-report measures. Some individuals believe perfectionism is a strength, while others believe it is a weakness. Therefore, participants may have been inclined to respond in a socially desirable manner.

5. The APS-R perfectionism measure only allows for grouping participants into perfectionism types and does not allow for adaptive and maladaptive perfectionism scores. Additionally, the intelligence mindset measure only allowed for one score. Consequently, participants were given only a growth mindset score, making it challenging to compare these results to past research that included measures that assigned participants both a fixed and growth mindset score.

Recommendations

1. Given that various perfectionism measures exist, research should be conducted to see if the same results hold when other measures are utilized, such as the FMPS and the MPS. Since person fixed mindsets are related to perfectionism's maladaptive aspect within a perfectionist sample, it would be interesting to see if this measure would be related to either the MPS socially prescribed or other-oriented perfectionism. Furthermore, future research could include perfectionism measures such as the Perfectionism Cognitions Inventory (i.e., Flett et al., 2007) to explore how perfectionistic thoughts relate to mindsets.

2. Future research could adapt the current measure of person mindsets to measure beliefs about the self. For instance, the item stating "people can do things differently, but the important parts of who they are can't really be changed" could instead be adapted to read "you can do things differently, but the important parts of who you are can't really be changed." Additionally, instead of using a general intelligence measure, a more specific measure could be used (e.g., mindsets regarding math ability, mindsets regarding a class all participants are enrolled in, etc.).

3. Because this is the first study of its kind utilizing a college student population, more research should be conducted to see if these results can be replicated.

4. Additional research should further explore the relationship between mindsets and perfectionism amongst perfectionists.

5. Besides looking at differences among various perfectionist types, this study was primarily correlational and did not examine more specifically the relationships between mindset and perfectionism. Therefore, future

research utilizing the APS-R should include regression analysis to evaluate whether different mindsets predict various components of perfectionism.

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