Structure of Perfectionism and

Relation to Career Indecision

by

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ABSTRACT

Perfectionism has been conceptualized as a relatively stable, independent, multidimensional personality construct in research during the last two decades. Despite general agreement that perfectionism is dimensional in nature, analyses using these instruments vacillate between a dimensional approach and a categorical approach (Broman-Fulks, Hill, & Green, 2008; Stoeber & Otto, 2006). The goal of the current study was two-fold. One aim was to examine the structural nature of two commonly used measures of perfectionism, the APS-R and the HFMPS. Latent class and factor analyses were conducted to determine the dimensions and categories that underlie the items of these two instruments. A second aim was to determine whether perfectionism classes or perfectionism factors better predicted 4 criterion variables of career indecision. Results lent evidence to the claim that both the APS-R and HFMPS are best used as dimensional, rather than categorical instruments. From a substantive perspective, results indicated that both positive and negative aspects of perfectionism successfully predicted career indecision factors. The study concludes with a discussion of limitations, and implications for future research and counseling individuals with career indecision concerns.

To my Mom and Dad, thank you for your love, support, and terrific pep talks from my very first day of school, to my last.

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Chapter I: Introduction

References to perfectionism have been made in psychological literature since the 1950's (Adler, 1956; McClelland, 1951). Initial theoretical postulates about perfectionistic strivings suggested such behaviors were a basic part of the human response to inadequacy and inferiority (Adler, 1956). Early researchers, in reference to goal attainment, defined perfectionism as "all-or-nothing thinking" (Hollander, 1965). Unless a self-imposed goal was achieved exactly as desired, one's effort was perceived by the actor as failure regardless of how close the actor came to achieving the target goal. Later theoretical models proposed overgeneralization of failure as an essential aspect of perfectionism (Burns, 1980; Hamachek, 1978). It is thought that perfectionists not only perceive failure in the context of an immediate situation, but these individuals generalize extreme performance standards to all domains of their life, including career and interpersonal relationships.

In light of these exceptionally high and unrealistic performance standards, it seemed logical that perfectionism would be linked to various indices of maladjustment such as characterological feelings of failure, low self-esteem, and anxiety (Burns, 1980; Hamachek, 1978). Perfectionist tendencies have been linked to many serious forms of psychopathology such as anxiety, eating disorders, and personality disorders (Flett, Hewitt, Endler, & Tassone, 1994-1995; Hewitt, Flett, & Ediger, 1995; Hewitt, Flett & Turnbull, 1992). Among the most serious consequences of perfectionism are depression (Flett, Hewitt, Blankstein, O'Brien, 1991; Hewitt & Flett, 1991) and suicidal tendencies (Hewitt, Flett, & Turnbull-Donovan, 1992).

Because of the impossible nature of appearing perfect at all times, perfectionistic individuals quite often inevitably "fail". This "failure" leads to excessive concern over mistakes (Parker & Adkins, 1995) and high vulnerability toward negative self-evaluative emotions (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993), shame in particular (Hewitt et al., 2002). This perfectionistic drive may also include a strong motivation for individuals to avoid exposing perceived imperfections and "failures" to others. A growing body of research has linked perfectionism with interpersonal difficulties, including hostile interpersonal functioning (Rohlfing & Tracey, 2010), a fear of intimacy (Martin & Ashby, 2004), and maladaptive marital coping and poor marital adjustment (Haring, Hewitt, & Flett, 2003).

Taken together, these results imply that perfectionism is a personality trait that includes multiple maladaptive behaviors, and may be more than the "healthy motivational drive" that it was at one time assumed (Burns, 1980; Hamachek, 1978). Indicative of the growing attention given to perfectionism in the research community is the rapidly growing body of research dedicated to elucidating the construct. A literature search of PsycInfo conducted on March 28, 2011 yielded almost 2,000 articles, dissertations, books, and book chapters related to perfectionism; a similar search conducted in 2004 yielded less than 200 hits on this subject. Two trends have emerged from this growing body of research, informing the research questions addressed in the current study.

First, the bulk of perfectionism research that has been produced in the last two decades conceptualizes perfectionism as a relatively stable, independent, multidimensional personality construct. However, prominent scholars in this area

continue to disagree about the specific dimensions and appropriate measurement of the construct (Flett & Hewitt, 2006; Hewitt, Flett, Besser, Sherry, & McGee, 2003; Owens & Slade, 2008; Shafran, Cooper, & Fairburn, 2003; Slaney, Rice, Mobley, Trippi & Ashby, 2001). As a direct consequence, several different empirical instruments are regularly used in perfectionism research (Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991; Slaney, Mobley, Trippi, Ashby & Johnson, 1996). Despite general agreement that perfectionism is dimensional in nature, it has been noted that analyses using these instruments regularly vacillate between the dimensional approach and the categorical approach (Broman-Fulks, Hill, & Green, 2008; Stoeber & Otto, 2006). To be more specific, the dimensional approach maps all individuals along one or more continuous dimensions, assessing them to be more or less perfectionistic. The categorical approach sorts individuals into groups or types of perfectionists, a person either is or is not a perfectionist.

The lack of consistency in measurement is troublesome. It is not uncommon for literature reviews in this area of research to report historical findings in aggregate, regardless of whether dimensional or categorical analytic techniques were used in previous studies. These types of summaries may be inaccurately reporting the trends of very different measures, and possibly, very different latent constructs. As noted by Ruscio and Ruscio (2008), in psychological research arbitrary assignment of individuals to continua or categories may result in confirmation of false dimensions or types. The choice of using dimensions or categories may be a product of personal preference or

measurement trends in the field, but such conceptualizations may not adequately reference the latent structure of a particular variable.

It has been suggested that latent class analytic techniques may better represent observed data than traditional cluster analytic procedures (Steinley & Brusco, 2011). Such a type of analysis has only once been implemented to examine the factor structure of perfectionism (Broman-Fulks et al., 2008), and failed to (a) include one of the most commonly used measures of perfectionism, the Almost Perfect Scale-Revised, (Slaney, Rice, Mobley, Trippi, & Ashby, 2001), and (b) examine the predictive nature of perfectionism in relation to outcome variables. Therefore, the first set of research questions addressed by the current study sought to clarify the structural nature of perfectionism by examining the dimensional and categorical structures of two popular measures of the construct.

A second trend deduced from the existing perfectionism literature addresses the lack of research in domains unrelated to mental health. Despite the trait stability of perfectionism (Rice & Aldea, 2006), and the general expectation that it should manifest across many life domains, the vast majority of published research has examined perfectionism in relation to various indices of psychopathology and maladjustment. As perfectionism has rarely been examined outside of the mental health sphere, very important pieces to the puzzle of how perfectionism influences thought and behavior are still missing. One such neglected area is career development.

Consistently included in the conceptualization of perfectionism is the desire to be perfect in all things – this includes the desire to make perfect decisions. Arguably, career

choice is one of the most important decisions an individual can make in his or her lifetime; therefore, it is possible that perfectionists may have difficulty functioning under the weight of such a decision. Research on perfectionism and general decision-making related behaviors reflects this possibility. Kobori and Tanno (2008) found that individuals who scored higher on a perfectionism inventory solicited more information than low-scoring individuals before making decisions. Links have also been found between perfectionism and factors such as trait rumination (Randles, Flett, Nash, McGregor, & Hewitt, 2010), anxiety (Kaplan & Brown, 1987), procrastination (Ferrari, 1995), and indecisiveness (Frost & Shows, 1993; Gayton, Clavin, Clavin, & Broida, 1994), that could result in delayed decision-making or inability to make decisions. It might also be expected that some of the factors that have been linked to career decision-making may also be related to perfectionism. For example, White and Tracey (2011) found in a sample of 537 undergraduates that higher authenticity scores were negatively correlated with career indecision. Considering the intense focus perfectionists place on the avoidance of negative evaluations, it seems possible that these individuals may forego authenticity in order to appear more favorable in the eyes of others. They may therefore choose career tracks that are desirable to others, rather than to themselves.

Despite these theoretical links between perfectionism and career decision-making difficulties, which will henceforth be referred to as career indecision, the relevance of perfectionism to career development, in general, has largely been unexamined. A review of the career development literature produced only five empirical studies of perfectionism (Ganske & Ashby, 2007; Gati et al., 2011; Lehmann & Konstam, 2011; Leong &

Chervinko, 1996; Page, Bruch, & Haase, 2008), just three of which examined career indecision.

Leong and Chervinko (1996) found distinct patterns between career decision-making and various dimensions of perfectionism. More recently, Gati and colleagues (2011) examined a three cluster model of emotional and personality-related factors associated with career decision-making difficulties (Saka, Gati, & Kelly, 2008) by comparing the model to various personality factors, including perfectionism. Significant findings of the Gati et al. (2011) study included positive correlations between perfectionism and two of the three factors of career decision-making difficulties examined, *Anxiety* and *Self-concept and Identity*. A third study by Lehmann and Konstam (2011) tested the influence of perfectionism and problematic internet use (PIU) on career indecision. Their findings indicated that PIU accounted for the majority of variance of career indecision. Lehmann et al. also identified that two distinct, previously established dimensions of perfectionism appeared to have different influences on career indecision: negative, or maladaptive perfectionism, and positive, or adaptive perfectionism. These two dimensions will be discussed at length in Chapter 1. In the Lehmann et al study, the first dimension, called negative, or maladaptive perfectionism, which is thought to represent generally maladaptive traits including rumination and failure to meet one's own high standards (Hamachek, 1978; Hill et al., 2004), was found to account for a small proportion of variance in career indecision. The second dimension of perfectionism identified in this study, called adaptive perfectionism, was found to be unrelated to career indecision. This second finding is interesting because adaptive

perfectionism is thought to represent generally adaptive traits such as achievement of high standards (Stoeber & Kersting, 2007), and it would make sense that such positive traits may be negatively associated with career indecision. Regrettably, our understanding of the relation of perfectionism and career indecision is limited to just these three studies. Furthermore, as each of these studies used unique measures of perfectionism and career indecision, it is difficult to interpret meaningfully their collective results.

The goal of this dissertation is two-fold. One aim is to examine the structural nature of two commonly used measures of perfectionism, the APS-R and the HFMPS, categorically and dimensionally. The latent class and dimensional factor structures of both instruments will be identified to determine the structure of each instrument and to ascertain whether the instruments share a common structure.

A second aim of this study is to examine the relationship between perfectionism and career indecision. The small, existing body of research in this area is the beginning of a much needed systematic investigation of the theoretically implied link between perfectionism and career indecision. Further research in this area may contribute to an understanding of perfectionism beyond mental health concerns and, ultimately, inform career counseling practices with perfectionistic individuals.

Chapter II: Review of the Literature

The chapter that follows critically reviews seminal and contemporary literature on the measurement of perfectionism, and the understanding of this construct in relation to career indecision. Early research generally concluded that perfectionism is solely maladaptive, and several empirical instruments were created in support of this assertion. Beginning in the 1990's, some researchers introduced the contention that perfectionism had maladaptive *and* adaptive components, and additional perfectionism measures were developed that reflected this postulation. At present, there is no consensus in the field with regard to either the structure of perfectionism or appropriate measurement of perfectionism. This psychometric concern will be the focus of the first half of the review that follows. Related sections discuss competing models of perfectionism, measurement techniques, and equivocal results.

The following chapter also addresses the dearth of research examining perfectionism in a context outside of mental health concerns in general and career decision-making specifically. Related sections include a review of the small body of literature linking perfectionism and career indecision, and a discussion on the benefit of understanding perfectionism in the context of the world of work. The review concludes with a summary and critique of existing literature followed by a discussion of the specific research questions and hypotheses suggested by the review and examined in this dissertation.

Models of Perfectionism

Since the early 1990's the psychological research community has given a significant amount of attention to the idea of perfectionism as an independent construct. As a result, a steadily growing body of empirical research toward a universal conceptualization of perfectionism suggests that it is a relatively stable, independent, and multidimensional personality construct (Blatt, 1995; Burns, 1980; Flett, Hewitt, Blankstein & Gray, 1998; Frost, Marten, Lahart & Rosenblate, 1990; Slaney et al., 2001).

In the past two decades three separate measurement representations of perfectionism have emerged in the form of psychometric instruments (Frost et al., 1990; Hewitt & Flett, 1991; Slaney, Mobley, Trippi, Ashby & Johnson, 1996). Each of the models represent perfectionism as a multidimensional construct but vary in the number and qualitative nature of dimensions included.

Frost model of perfectionism. Understanding perfectionism to be a maladaptive intrapersonal process, Frost and colleagues defined perfectionism as "the setting of excessively high standards for performance accompanied by overly critical self-evaluations" (p. 450, Frost et al., 1990). Following an extensive literature review, Frost et al. (1990) used the deductive method of scale development to construct the Multidimensional Perfectionism Scale (FMPS). Principal components analysis on a group of 84 female undergraduates at a private East Coast college revealed six intrapersonal dimensions of the FMPS. After noting the all-female sample used by Frost et al, this factor structure was later confirmed by Parker and Adkins (1995) using a sample of 278 male and female college students from two Southern colleges. Despite

this replication of their original six-factor structure, Frost et al. consistently caution against using one dimension of the FMPS, *organization* (O), in the measurement of perfectionism as they believed order and organization to be behaviors associated with, rather than indicators of, perfectionism (Frost et al., 1990; Frost et al., 1993).

Frost et al. conceive of perfectionism as solely maladaptive and therefore, of the remaining five dimensions of the FMPS, *concern over mistakes* (CM) is the key dimension in this theory. The CM dimension includes negative personal reaction to mistakes, a tendency to view mistakes as equivalent to failure, and a tendency to believe that one will lose respect from others after failure. The authors believe CM to be the necessary distinction between perfectionists and high achievers. A second dimension includes the setting of very high *personal standards* (PS), along with the importance of self-evaluation in relation to these standards. The *doubts about actions* (DA) dimension includes the tendency to doubt the quality of one's own performance. The final two dimensions of the FMPS are representative of parental concerns. *Parental expectations* (PE) is conceptualized as the tendency to believe that one's parents set very high performance standards or goals for the individual, while p*arental criticism* (PC) reflects the tendency to perceive one's parents as overly critical.

The FMPS has demonstrated strong validity and internal consistency with non-clinical samples of undergraduates (Frost et al., 1990; Parker et al., 1995), and clinical samples, including a study of 34 patients with Obsessive-Compulsive Disorder, and 14 patients with Agoraphobia (Frost & Steketee, 1997), and a study of 332 patients with anxiety disorders (Purdon, Antony, & Richardson, 1999). The Purdon et al. (1999) study

revealed a similar factor structure to that reported by Frost et al. (1990), but determined a 3-factor structure to be more appropriate than the original 6-factor structure. These factors were labeled *Fear of Mistakes*, *Goal/Achievement Orientation*, and *Perceived Parental Pressure*.

Overall perfectionism as measured by the FMPS has been regularly used in relation to various mental health concerns. The FMPS is positively correlated with measures of general psychological distress, guilt, procrastination (Frost et al., 1990), obsessive-compulsive symptoms (Frost et al., 1997), depression (Frost et al., 1993), suicidal preoccupation (Adkins & Parker, 1996), and eating disorders (Minarik & Ahrens, 1996). It has also been demonstrated that the CM dimension of the FMPS, in particular, shows the strongest link to these and other indices of psychological distress.

Hewitt and Flett model of perfectionism. Hewitt and Flett (1991), like other researchers, conceptualized the multidimensionality of perfectionism to contain self-directed cognitions but also believed there to be an interpersonal component to perfectionism. The Multidimensional Perfectionism Scale (HFMPS) by Hewitt and Flett (1991) included an interpersonal dimension of perfectionism, and distinguished between perfectionistic standards and the attainment of those standards. The Hewitt and Flett MPS contain three essential dimensions: self-oriented perfectionism, other-oriented perfectionism, and socially prescribed perfectionism. The three dimensions of perfectionism differ in their source or origin (self vs. significant other) and direction (self-oriented vs. other-oriented) of perfectionistic thought and behavior. The authors of the HFMPS produced a large pool of items intended to represent the nature of each of the

three dimensions, and administered the battery of items to a sample of 156 undergraduates at a large Canadian university. Discriminant validity analysis was used to determine which items were included in the final scale. Principal components analysis with clinical and non-clinical samples has confirmed the three sub-scale model (Hewitt & Flett, 1991). Hewitt and Flett conceive of each dimension as an equally necessary component of overall perfectionistic behavior (Flett & Hewitt, 2002) and each component is described below.

Self-oriented perfectionism (SOP) is demonstrated through self-derived, self-directed perfectionistic behavior. Individuals with high SOP scores set exacting goals for themselves, stringently evaluate their performance, have a discrepancy between actual self and ideal self, and strive to attain perfection as well as avoid failure (Flett & Hewitt, 2002). Other-oriented perfectionism (OOP), like SOP, comes from the self, but involves beliefs holding significant others to unrealistically high standards, constant evaluation of the performance of others, and an emphasis on the importance of others being perfect. OOP is thought to lead to lack of trust, feelings of hostility toward others, and interpersonal problems, as well as produce difficulties for the targets of other-oriented perfectionism (Flett & Hewitt, 2002). In contrast to the other two dimensions of perfectionism, Socially prescribed perfectionism (SPP) involves perception of the need to attain unreasonably high standards that are prescribed to the self by significant others, coupled with the belief that others will reject the self if these standards are not attained. Thus, socially prescribed perfectionism includes a striving to constantly appear perfect to others as a means of avoiding negative evaluation. At the same time, socially prescribed

perfectionism is also self-related, as it includes concern with one's own lack of perfection, which stems from the need to please important others. Of the three dimensions of perfectionism, socially prescribed perfectionism is thought to be the most harmful because it lacks association with any adaptive traits and is most strongly and consistently associated with a multitude of social and self-related psychological disorders and symptoms (Flett & Hewitt, 2002). An explanation for this finding may lie in the dual nature of socially prescribed perfectionism as both self and socially influenced.

Slaney, Mobley, Trippi, Ashby and Johnson model of perfectionism. A third group of perfectionism researchers have asserted that the multidimensional construct is not solely maladaptive, like others had suggested, but may also have functional qualities (Slaney, Ashby, & Trippi, 1995). Development of the Almost Perfect Scale (APS) included item development from data collected from qualitative interviews with a criterion group of perfectionists (Slaney & Ashby, 1996), combined with a review of the perfectionism literature, followed by factor analysis to extract the current instrument factors. After several revisions, the Almost Perfect Scale - Revised (APS-R; Slaney, Mobley, Trippi, Ashby & Johnson, 1996), is an intrapersonally focused measure of two adaptive dimensions and one maladaptive dimension of perfectionism. The two adaptive dimensions are *High Standards* for self, which measures the extent to which individuals set high standards for personal behavior and performance across personal and professional domains, and *Order*, which examines the extent to which individuals value and create order and organization when completing tasks. The sole maladaptive dimension of perfectionism is *Discrepancy*, the gap between a person's expectations and

their performance. Principal components analysis confirmed the three sub-scale model (Suddarth & Slaney, 2001).

More recently, Shea, Slaney, and Rice (2006), added an interpersonal component to their empirical model of perfectionism, and created the Dyadic Almost Perfect Scale (DAPS) to reflect this modification. The DAPS includes interpersonal measures of each of the three dimensions of the APS-R, and is conceptually similar to the interpersonal Other-Oriented Perfectionism (OOP) subscale of the HFMPS. However, there is no theoretical link between one's perfectionistic standards for others and one's own career concerns. For that reason, the limited body of research examining the relation between perfectionism and career indecision does not include the DAPS or HFMPS OOP scales, which were designed to measure perfectionistic expectations of significant others and important others (e.g., friends, family), respectively. Consequently, the DAPS will be excluded from the current study.

More relevant to the current study, a considerable body of research has lent support for the differentiation between adaptive and maladaptive dimensions of the APS-R. However, it should be noted that despite theoretical conceptualization of the APS-R as dimensional, the authors of the instrument consistently use the tool to identify categories, or clusters of perfectionists using cluster analysis. For example, Rice and Slaney (2002) found a three cluster solution of adaptive perfectionists, maladaptive perfectionists, and non-perfectionists in two undergraduate samples (n = 633). Grzegorek, Slaney, Franze, and Rice (2004) also used cluster analysis to differentiate adaptive and maladaptive clusters of perfectionists in a sample of 273 undergraduates,

finding maladaptive perfectionism to be strongly correlated to self-critical depression, while adaptive perfectionism was correlated with higher self-esteem and greater GPA satisfaction. Similar results to those of Grzegorek et al. were found with a sample of 251 African-American undergraduates (Mobley, Slaney, & Rice, 2005). These results collectively indicate that the maladaptive perfectionist cluster is typically identified by high scores on the Standards subscale and the Discrepancy subscale of the APS-R, while adaptive perfectionists have been found to have elevated Standards scores but low Discrepancy scores.

Adaptive perfectionists, as determined by the aforementioned cluster score patterns (elevated Standards scores, low Discrepancy scores) determined using the APS-R, have been shown to have higher levels of life satisfaction (Gilman, Ashby, Sverko, Florell, & Varjas, 2005), self-esteem (Grzegorek et al., 2004; Mobley et al., 2005; Rice et al., 2002), and academic achievement (Rice et al., 2002; Slaney et al., 2001). Adaptive perfectionism seems also to have a buffering effect against many indicators of psychological distress that are regularly found to be associated with maladaptive perfectionism. These findings include lower levels of anxiety and depression (Mobley et al., 2005; Rice et al., 2002), lesser external locus of control (Periasamy & Ashby, 2002), and fewer depressed/distorted cognitions (Rice, Bair, Castro, Cohen, & Hood, 2003) experienced by adaptive perfectionists than experienced by maladaptive perfectionists.

While maladaptive perfectionists, as defined using the aforementioned cluster score patterns (elevated Standards and elevated Discrepancy scores), have been shown to have higher external locus of control, depression, and anxiety than adaptive perfectionists

(Periasamy et al., 2002; Rice et al., 2002), results have consistently shown little to no difference in these behaviors between maladaptive perfectionists and non-perfectionists. These findings are in direct conflict to a vast majority of the research using the FMPS and the HFMPS and may indicate that, while maladaptive perfectionism (as measured by the APS-R) is not associated with higher levels of psychological distress, adaptive perfectionism has a significant influence on healthy functioning.

Measurement of Perfectionism

A current and tremendous challenge within the field of perfectionism research is the lack of agreement about the nature of the construct. Despite the steady production of empirical research on perfectionism, scholars continue to engage in a seemingly relentless theoretical debate with regard to what, exactly, perfectionism is. Flett and Hewitt (2006) acknowledged this concern, stating that "in general, the wealth of research on perfectionism has not been matched by theoretical attempts to understand the nature of perfectionism..." (p. 473).

In the absence of strong theoretical research about perfectionism, many scholars have developed empirical models of the construct. However, as aforementioned, this empirically focused examination of the construct has not yielded consistent results, primarily due to the regular use of several different forms of instrumentation and varying types of analysis. As each measure of perfectionism has been developed to correspond with a different theory of perfectionism, it is not unexpected that factor analyses should render unique factor structures for each instrument. Indeed, separate factor analyses of each of these measures have revealed equivocal results.

Frost et al. (1991) found the FMPS to have 6 factors, corresponding to the six subscales of the instrument. Using a clinical sample of 322 anxiety disorder patients, Purdon, Antony, and Swinson (1999) argued for a three-factor structure that required redistribution of the items from the six subscales into three groups: Fear of Mistakes, Goal/Achievement Orientation, and Perceived Parental Pressure. More recently, Harvey, Pallant, and Harvey (2004), using a non-clinical sample of 255 adult Australians, determined a 4-factor structure, which they interpreted to include: Negative Projections, Organization, Parental Influences, and Achievement Expectations.

Hewitt and Flett (1991) found the HFMPS to hold a three-factor structure for both university students and psychiatric patients. However, in a study with 531 undergraduates, Trumpeter et al., (2006) found the HFMPS to have a 9-factor structure.

Finally, factor analysis of the APS-R supported a 3-factor structure of the measure, namely high standards, order, and discrepancy (Slaney et al., 1996). However, others have reported a 2-factor structure, with Standards and Order appearing to represent one positive factor, and Discrepancy representing the second, negative factor (Cox et al., 2002).

It is difficult to extract meaningful information from the collective results of these separate studies. While it is possible that each of the measures that were factor analyzed in these aforementioned studies represent a unique set of personality traits that underlie perfectionism, it is also possible that these factors, if analyzed together, may reveal a shared, or common, set of factors that represent perfectionism. A third possibility could be a combination of these options, that these instruments may each uniquely measure

certain traits, while also sharing the capability of measuring a common set of perfectionism factors. The point is that these analyses do not produce a clear picture of what these instruments have in common, versus what they uniquely measure.

Dimensions versus categories. As noted in a meta-analysis by Stoeber and Otto (2006), perfectionism researchers also appear to be divided into two groups with regard to their approach to analysis: a dimensional approach versus a categorical approach. Some researchers have consistently maintained that perfectionism is a solely maladaptive personality trait (Frost et al., 1991; Hewitt et al, 1996; Hewitt et al., 2002), such that individuals vary in their degree of perfectionism rather than in kinds of perfectionism (Flett et al., 2002). The multiple subscales of the FMPS and HFMPS are representations of dimensions of perfectionism, along which all individuals can be plotted. The alternative to this conceptualization of perfectionism is that there are distinct characteristics associated with high and low scores on each dimension of perfectionism and thus, perfectionism should be examined categorically (maladaptive vs. adaptive) based on high/low score cutoffs (Slaney et al., 2001; Terry-Short, Owens, Slade, & Dewey, 1995). The latter measurement technique has been used to interpret APS-R scores, almost without exception; high scores on the APS-R High Standards and Discrepancy subscales indicate maladaptive perfectionism, high scores on the High Standards subscale and low scores on the Discrepancy subscale indicate adaptive perfectionism, and low scores on both of these subscales indicates non-perfectionism. Supporters of the categorical nature of perfectionism have used the results of cluster analytic techniques to support the existence of adaptive and maladaptive categories of

perfectionists (Grzegorek et al., 2004, Mobley et al., 2005; Parker, 1997; Rice et al., 2002) within the dimensional construct.

Despite the differing analytic techniques used by various researchers, frequent attempts using the dimensional approach have been made to determine the degree of similarity between each of these three perfectionism instruments. Joint factor analysis of the FMPS, HFMPS, and APS-R has commonly revealed a 2-factor dimensional structure (Frost et al., 1993; Slaney et al., 1995). However, both studies used the older, unpublished version of the APS-R that contained 8 subscales, only two of which remain in the current APS-R (High Standards and Organization). One dimension, most regularly called "adaptive perfectionism" (Rice et al., 2002) or "perfectionistic strivings" (Frost et al., 1993), represents the healthy, positive strivings toward high performance levels. Across many different studies, this "positive" dimension has consistently included the HFMPS subscale of Self-Oriented Perfectionism, the High Standards subscale of the FMPS, and the subscale of the APS-R of the same name. The other dimension, "maladaptive perfectionism" (Rice et al., 2002) or "maladaptive evaluation concerns" (Frost et al., 1993) captures the tendency to perceive personal performance as drastically subpar as well as the tendency to believe that important others are assessing performance in a similarly negative light. This "negative" dimension includes the Socially Prescribed Perfectionism subscale of the HFMPS, the Discrepancy subscale of the APS-R, and the Concerns about Mistakes and Doubts about Actions subscales of the FMPS.

It is this lack of consensus in the field that has stymied the advancement of perfectionism research. Further, incorrect measurement of a psychological construct is

not merely empirically unsound; the consequences of inappropriate analysis may ultimately impede proper identification and assessment of psychological phenomena. An incorrect conclusion about the presence or absence of trait perfectionism may increases the probability of ineffective or inappropriate treatment of individuals. Perhaps a result of this unresolved issue is the virtual absence of literature on the treatment of perfectionism (Ferguson & Rodway, 1994; Shafran & Mansell, 2001).

Analysis Considerations. The choice of any statistical method has a limited theoretical basis, particularly if only one statistical technique is used (Uebersax; in Rost & Langeheine, 1997). Should the sole measurement technique used in a particular study be inappropriate, there are many implications of, and problems resulting from, statistical analysis and interpretation. The structural knowledge of any particular factor is not arbitrary but can inform the criteria that are then used to classify types or traits and resulting assessment techniques (Ruscio & Ruscio, 2008).

Embretson (2010) recently noted, "several developments in model-based measurement have the potential to impact the nature of the constructs that can be measured in psychology" (p. 3), suggesting that these more rigorous techniques may more aptly explain various psychological constructs. One such model-based measurement strategy is a form of latent class analysis, taxometrics. This technique has been used with perfectionism on a single occasion. Broman-Fulks et al. (2008) collected data from 616 undergraduates on the FMPS and a scale of perfectionism not included in the proposed study, the Perfectionism Inventory (Hill et al., 2004), another 816 students completed the HFMPS. MAXEIG (Waller & Meehl, 1998), MAXCOV (Meehl &

Younce, 1996), MAMBAC (Meehl & Younce, 1994), and L-Mode (Waller et al., 1998) tests on the three perfectionism measures yielded support for a single latent perfectionism dimension, and it was determined that categorical data analysis is inappropriate for this factor. However, there were two notable limitations to the Broman-Fulks et al. study. Foremost was the type of indicators chosen, every measure of perfectionism included in the study was designed to be used as a dimensional measure. This poses a significant problem, as the leading categorically perfectionism indicator that is used categorically, the APS-R, was excluded from examination.

A second limitation of the Broman-Fulks et al. study was the type of analysis used. Taxometry, by nature, does not include examination of outcome variables when determining factor structure. Analysis that includes outcome variables can provide additional support for the latent factor structure by serving the valuable purpose of further examining the predictive validity of the indicator variables. An appropriate outcome variable that has been empirically linked to perfectionism is career decision-making self-efficacy (Ganske & Ashby, 2007; Page, Monroe, & Haase, 2008). While the structure of perfectionism is a pertinent empirical question, research indicates it is clear that the construct is related to career decision-making self-efficacy, regardless of examination as a trait or a type. Specifically, maladaptive perfectionism (as a type or as a low score) is related to lower career decision-making self-efficacy, while adaptive perfectionism (as a type or as a high score) is related to higher career decision-making self-efficacy (Ganske et al., 2007; Page et al., 2008). It is important to note that Ganske et al. study used the APS-R as the sole perfectionism instrument, which is regularly categorically analyzed,

while Page et al. used a pair of instruments, the HFMPS, and the FMPS, that are typically analyzed dimensionally.

In the current study I sought to build upon the work of Broman-Fulks et al. (2008), Ganske et al. (2007), and Page et al (2008) in two ways. First, the APS-R and HFMPS were deliberately chosen for this study in order to examine the latent structure of both measures. Stairs et al. (2012) recently argued that many scales of perfectionism may measure different traits thought to be associated with the construct. Using one categorically analyzed instrument (APS-R) and one dimensionally analyzed (HFMPS) in this study may provide additional knowledge about the underlying structure of each instrument, and whether the two instruments represent the same or different constructs. The FMPS was not included as a predictor variable in this study for purposes of parsimony. It is believed the HFMPS not only conceptually captures the factors of the FMPS (Campbell & Di Paula, 2002), but has been shown to exhibit the same two-factor structure (Frost, 1993). Therefore, the FMPS would not be expected to contribute uniquely to the current investigation.

This study built upon the prior research in a second way, further examining the possible link between perfectionism and career-related concerns by concurrently using categorical and dimensional analyses of perfectionism to predict factors of career indecision. In addition to assisting interpretation of latent structure by determining which instrument does a better job of predicting a criterion variable, a tremendous benefit to investigating the nature of perfectionism in relation to career indecision is the paucity of literature that examines perfectionism outside of the sphere of mental health. While

occupational decision-making is an area long theorized to be related to perfectionism it has been minimally examined to date.

Perfectionism and Career Indecision

In the realm of career counseling, measurement of individual difference variables (such as perfectionism) can be a valuable way to predict meaningful career-related outcomes. One such outcome is career indecision. The earliest study of perfectionism and career decision-making used semi-structured interviews to examined career decision-making factors in gifted high school students (Emmett & Minor, 1993). Findings indicated that students perceived perfectionism to negatively impact career decisions, listing fear of not meeting others' expectations, fear of making the "wrong" choice, and high performance expectations as major contributing factors to career indecision. These results lend indirect support to the notion that perfectionism may be related to career decision-making difficulties. However, the conclusions of the Emmett and Minor study should be only cautiously considered, as the authors grouped participant responses using their own interpretation of "perfectionism", rather than any of the aforementioned empirically derived dimensions or factors.

In a theoretical paper, Slaney, Ashby, and Trippi (1995) suggested a relationship between perfectionism, career choice, and career development, stating "it seems likely that being perfectionistic would be related to the type of career chosen, performance while in that career, productivity, satisfaction, adjustment to retirement, and a number of other variables central to the study of career choice and development" (p. 279). A short time later, a qualitative study was conducted by Slaney and Ashby (1996) using

individual interviews of self-reported perfectionists to develop the criterion for the construct of perfectionism, in which participants reported that perfectionism most affected their "professional and academic work" (p. 395).

Despite these theoretical and qualitative links between perfectionism and career decision-making difficulties, the relevance of perfectionism to career indecision has been largely unexamined empirically. A review of the literature produced only three empirical studies of perfectionism and career indecision (Gati et al., 2011; Lehmann & Konstam, 2011; Leong & Chervinko, 1996).

Using the HFMPS in a study on the relation of negative personality traits on career indecision (using the Career Decision Scale; Osipow, Carney, Winer, Yanico, & Koschier, 1976) with 217 college students, Leong and Chervinko (1996) found distinct patterns of career decision-making. Regression analyses indicated self-oriented perfectionism (SOP) to be predictive of decreased career indecision, while socially-prescribed perfectionism (SPP) was predictive of increased career indecision. These findings are qualitatively similar to those of Emmett and Minor (1993), such that personal standards and the perceived expectations of others influenced career decision-making.

A second study (Gati et al., 2001) also used the HFMPS as a the measure of perfectionism, but used the Emotional and Personality Career Difficulties Scales (EPCD; Saka et al., 2008) as the measure of career indecision. The larger purpose of this study was to ascertain the effectiveness of the EPCD by examining its relationship to several personality-related factors previously found to be related to career decision-making difficulties. Three separate groups of participants, 197 adults taking a 9-month pre-

university preparatory program, 231 adult train passengers, and 691 adults who visited a career planning website completed a series of questionnaires, including the EPCD, the HFMPS and several other personality measures. Of the three EPCD clusters of career difficulties (pessimistic views, anxiety, self-concept and identity) the latter two clusters correlated positively with perfectionism (r = .18 and r = .16, respectively). However, in their analysis Gati et al. appear to have used a total HFMPS perfectionism score, which produces an incomplete description of the results by aggregating two theoretically and empirically different factors – adaptive and maladaptive perfectionism, as measured by the Self-oriented and Socially prescribed subscales of the HFMPS. The authors did not justify this atypical use of the HFMPS, and unfortunately it presents reviewers with results that are considerably difficult to interpret.

The final empirical examination of career indecision and perfectionism sought to investigate the combined effect of perfectionism and problematic internet use (PIU) on career indecision (Lehmann et al., 2011) in a sample of 486 adults (age range: 25-30). The authors used the CDDQ and the FMPS as measures of career indecision and perfectionism, respectively, and examined PIU using the Internet Addiction Test (IAT^2; Widyanto & McMurran, 2004). Correlation analyses indicated moderate significant positive relations between each of the three scales. Stepwise multiple regressions demonstrated that the majority of variance with maladaptive perfectionism in career indecision was accounted for by problematic internet use. However, this was not the case for the regression models that used adaptive perfectionism.

Unfortunately, our understanding of the relation of perfectionism and career indecision is limited to just these three studies, one of which conducted an inappropriate examination of perfectionism (Gati et al., 2011). A trio of studies linking these constructs seems particularly inadequate when taking into consideration the vast number of measures in existence used to examine them. Thus, having already addressed concern about perfectionism measurement practices it is also important to consider (a) how career indecision is best captured, and (b) how that relates to perfectionism.

Career indecision background

In a comprehensive review of the career indecision literature, Slaney (1988) noted there to be two generally distinct categories of career decision-making difficulties, short-term, developmental decisional concerns, and chronic indecision. According to the developmental perspective of career decision-making (e.g., Erikson, 1957; Super, 1957), indecision about career path is considered to be a normal developmental challenge for a majority of young adults. Usually, with time, most young adults overcome this challenge, and make a career decision. Career development research makes a distinction between these temporary career decision-making difficulties and pervasive decision-making difficulties, using the term *indecision* to refer to individuals experiencing the former, and *indecisiveness* to refer to individuals experiencing the latter (Osipow, 1999).

It has been regularly suggested that indecisiveness may be more difficult to resolve than normal, developmentally appropriate, career indecision. Tyler (1961) hypothesized a positive relationship between indecisiveness and the occurrence of personal problems. Crites (1969) described indecisiveness as "a more generalized

personality attribute" (p. 576) than indecision. In a seminal empirical study on the topic, Holland and Holland (1977) examined the responses of 1,005 high school students and 692 college students on measures of personality, decision-making ability, interests, and vocational attitude. Results suggested there to be several subtypes of what they called an "indecisive disposition", which was related to a lack of a clear sense of identity and decreased vocational maturity.

In a review of the literature, Salomone (1982) reiterated the importance of delineating between an undecided client and an indecisive client, and used case studies of two clients to illustrate the emotional and psychological, rather than cognitive, nature of client indecisiveness. As a result of this distinction, recommendations were made against implementing with career indecisive students the counseling practices used with career undecided students. Specifically, Salomone argued that the distinct nature of indecisiveness required unique career counseling approaches that addressed identity, self-esteem and confidence, autonomy, and interpersonal maturity. An early attempt to clinically quantify this distinction between indecision and indecisiveness (Van Matre & Cooper, 1984) included a four-category, 2 x 2 diagnostic matrix of career-decision making tendencies. Van Matre et al. suggested indecision to be a state (decided vs. undecided), while viewing indecisiveness (decisive vs. indecisive) as a trait, and provided general characteristics of clients that fit each diagnostic quadrant.

Over the past 30 years, several quantitative instruments have been developed in an attempt to measure empirically the many theoretical postulates about career decision-making difficulties (e.g., Chartrand, Robbins, Morrill, & Boggs, 1994; Gati, Krausz, &

Osipow, 1996; Jones, 1989; Osipow, 1976). Brown and Rector (2008) suggest that the majority of these instruments have adhered closely to two major themes proposed by Holland et al., (1977) and Salomone (1982): (a) problems in career decision making can be caused by a combination of cognitive, emotional, and psychological factors, and (b) different types of career counseling clients can be identified based on the problems they bring to counseling.

Brown and Rector (2008) recently argued for a comprehensive analysis of career indecision instrumentation, "One reason why research on vocational indecision has had such little impact on practice and on career counseling outcome and process research revolves around the plethora of variables that have been studied in the literature" (p. 397). To address this concern, they performed a meta-analysis of 35 different instruments, using 24 published correlation matrices of career indecision. Using principal axis factoring with oblique rotations, results suggested there to be four underlying factors of career indecision: *Indecisiveness/Trait Negative Affect*, *Lack of Information*, *Interpersonal Conflicts and Barriers*, and *Lack of Readiness*, and recommend using a specific combination of subscales from 4 career indecision instruments to capture individual scores on each of these four factors. Rector and Brown (2008) determined high scores on the indecisiveness scales of each, the Career Decision Profile (CDP; Jones, 1989), the Career Decision Difficulties Questionnaire (CDDQ; Gati, Krausz, & Osipow, 1996), and the Career Factors Inventory (CFI; Chartrand, Robbins, Morrill, & Boggs, 1994) to be good indicators of the first factor, Indecisiveness/Trait Negative Affect. Total Career Decision Scale (CDS; Osipow, 1976) scores were recommended for

use as an indicator of Lack of Readiness. The External Conflicts subscale score of the CDDQ was reported to be the best measure of Interpersonal Conflicts and Barriers. The Lack of Information factor was found to be adequately measured by the score on the CDDQ Lack of Information scale, the CFI information subscales, the Lack of Occupational Information subscale of the CDP, or the aggregate of the Choice Anxiety and Indecisiveness scale scores of the CFI.

Subverting the need to use multiple subscales from several different instruments to determine scores on the four career indecision factors, Brown et al. (2011) have recently created the Career Indecision Profile - 65 (CIP-65). Using a data-driven approach, this instrument was written using items derived from items within the 35 instruments that produced the Brown and Rector four factor model of career indecision. The CIP-65 has four subscales corresponding to each of the four indecision factors and is intended for research and clinical purposes. More recently, Hacker, Carr, Abrams, and Brown (2013) confirmed the factor structure and validity of the CIP-65 with a sample of 495 undergraduate students from two midwestern universities.

The CIP-65 has the potential to have a profound impact on career counseling interventions. Many researchers have noted that career counseling interventions tend to be "one size fits all", focusing on self-knowledge and career-related knowledge (Brown & McPartland, 2005) despite a growing awareness within the field of the diverse nature of career counseling concerns. It may then be of no surprise that common career counseling interventions have only a modest impact, such that those engaged in career counseling can be expected to achieve only approximately one third of a standard

deviation better outcome than control clients (Brown & Ryan Krane, 2000; Whiston, Brecheisen, & Stephens, 2003). Brown et al. (2008) pointedly remarked that most published career counseling interventions seem to ignore or fail to assess for the possible causes of client career decision-making difficulties. It is possible that the development of instrumentation reflecting the complex interplay of variables related to occupational decision-making may improve assessment of career counseling clients, and inform problem-specific treatment interventions.

Rationale

As discussed, the three aforementioned measures of perfectionism have been developed to correspond with two empirically related, yet distinct, theories of perfectionism, and results should be synthesized only with particular caution. Despite this, there is a strong tendency for researchers to draw broad conclusions about perfectionism by interpreting the combined results of studies using (a) different measures, and (b) differing statistical analyses, reflecting both categorical and dimensional conceptualizations of perfectionism.

The present study sought to address this shortcoming in the current body of perfectionism research by analyzing perfectionism as both a trait and a type via latent class and factor analytic techniques with two instruments, the APS-R and the HFMPS. As previously discussed, the FMPS was not included as a predictor variable in this study. Previous research has indicated that the HFMPS conceptually captures the factors of the FMPS and also exhibits the same two-factor structure of the FMPS (Campbell et al., 2002; Frost, 1993).

More specifically, through the current study I hope to contribute to the small, but important, collection of studies that have been developed to clarify the construct of perfectionism (e.g., Broman-Fulks et al., 2008; Stairs et al., 2012; Stoeber et al., 2006). To that end, I have addressed what I believe to be the two most essential questions related to this issue. First, do these instruments represent common, or unique factors? Using LCA and factor analysis, I examined whether the APS-R and HFMPS resemble each other, either in class form or factor form. The second psychometric question I address is whether two widely used perfectionism instruments, the APS-R and the HFMPS, are most appropriately used dimensionally or categorically. This was done by extracting categories and factors extracted from both instruments and using these indices to predict an outcome variable. Empirical evidence clarifying whether perfectionism is best measured as a trait or a type has the potential to assist the field in moving forward using one, universal conceptualization of the construct.

The second half of this study has been designed to address the relation between perfectionism and career indecision, which has been minimally examined empirically despite the many theoretical links between perfectionism and career decision-making. Maladaptive perfectionism and career indecision are both linked to generalized indecisiveness, anxiety, and neuroticism, while adaptive perfectionism and career decidedness are both linked to decreased anxiety and depression, as well as fewer distorted cognitions. A systematic investigation of the link between these two constructs could prove beneficial for career counseling with maladaptive perfectionists in particular, as they have been found to have poorer therapeutic outcomes than non-perfectionists.

The cluster and factor structures that emerge from the first set of analyses were then examined in relation to Brown and Rector's (2008) four factors of career indecision. The current study tested this relationship between perfectionism and the four factor career indecision model using the APS-R and HFMPS as predictor variables, and the recently developed CIP-65 (Brown et al., 2011) as the criterion variable.

Hypotheses

Hypothesis I. The first set of analyses answer whether an overarching structure of perfectionism exist by examining the class and factor structures of two extensively used perfectionism measures, the APS-R and the HFMPS. The APS-R is commonly used to identify and analyze different categories of perfectionists (adaptive, maladaptive, non-perfectionist), while the HFMPS is regularly used to measure dimensions of perfectionism traits (self-oriented, other-oriented, socially-prescribed). Each instrument was examined both ways in the current study, categorically and dimensionally. This was done for two reasons: 1) to establish the latent structure of each measure, and 2) to ascertain whether the two instruments share a latent structure. With regard to categories of perfectionists, the questions addressed via latent class analysis were: Would the previously established 3-cluster structure of the APS-R be replicated? Would the HFMPS also adhere to a 3 cluster structure? And finally, would these two instruments combined reveal a common 3-cluster structure? These questions were addressed using Latent Class Analysis.

With regard to dimensions of perfectionism, the sole question was: Do the APS-R and the HFMPS shared a set of common latent continuous factors? This second question

was addressed using item level Principal Axis Factor Analysis with oblique promax rotation.

Hypothesis II. The dimensional and categorical structures of perfectionism were compared by determining which structure best predicted career indecision more effectively. The four factors of career indecision identified by Brown et al. (2011), were used as criterion variables in this study including: a) Choice/Commitment Anxiety, b) Neuroticism/Negative Affectivity, c) Lack of Readiness/Immaturity, and d) Interpersonal Conflicts and Barriers.

Positive Predictors of Career Indecision. It was generally hypothesized that maladaptive perfectionism factor scores and membership in maladaptive perfectionist classes would predict increased career indecision factor scores. Specifically, a positive relation was expected between the CIP-65 factors of Choice/Commitment Anxiety, Neuroticism/Negative Affectivity, and Interpersonal Conflicts and Barriers and maladaptive perfectionism factors and classes.

These results would generally support the findings of Lehmann et al. (2011), who found maladaptive perfectionism to predict a small amount of the variance related to career indecision. This was also hypothesized because the factors and classes of perfectionism considered to be maladaptive are associated with a vast number of previously discussed intrapersonal and interpersonal negative outcomes that would be expected to relate to the aforementioned career indecision factors including: depression, anxiety, hopelessness, self-blame, high self-criticism, low self-esteem, poor relationship quality, and fear of intimacy (Ashby, Rice, & Kutchins, 2008; Dunkley, Blankstein,

Halsall, Williams, & Winkworth, 2000; Enns, Cox, Sareen, & Freeman, 2001; Grzegorek et al., 2004; Martin & Ashby, 2004; Suddarth & Slaney, 2001). It would therefore be expected that these variables measuring perfectionism would be related to career indecision factors of commitment anxiety, neuroticism, and interpersonal conflict factors.

Negative Predictors of Career Indecision. It was hypothesized that the factors and classes of perfectionism considered to be adaptive will be negatively related to career indecision. Specifically, a negative relation was expected between the CIP-65 Lack of Readiness factor, and adaptive perfectionism factors and classes.

This hypothesis is counter to the findings of Lehmann et al. (2011) which indicated no relation between adaptive perfectionism and career indecision. However, adaptive perfectionism is associated with a variety of previously discussed intrapersonal positive outcomes that would seem to be related to career decision-making, including less self-doubting, less procrastination, lower self-criticism, higher satisfaction with self/life/school, and higher self-esteem (Ashby & Bruner, 2005; Ashby & Kottman, 1996; Gilman et al., 2005; Grzegorek et al., 2004). It would make sense that less self-doubt and procrastination, in particular, would positively contribute to an individual's readiness to make a career decision.

Chapter III. Participants and Procedure

Two different samples were used for this study in order to address the purpose and sample size needs of both phases of analysis in the study. The first stage of analysis in this dissertation required a substantially large sample that represented the general college population to allow for latent class and factor analytic results to be extrapolated to the broader population. Therefore, a general college sample (Sample 1, n = 849) was procured via convenience from introductory sociology courses at Arizona State University. This sample is assumed to represent a general college sample because introductory sociology has one of the highest enrollment totals of all courses offered at Arizona State University, and is a common elective at the University. Therefore, students representing a diverse range of majors, interests, and personal characteristics were assumed to be captured by this sample.

The second sample was specifically selected for use in the second stage of analysis, involving examination of career indecision factors, because it is college sample of students (n = 270) enrolled in career exploration courses. The second sample included students enrolled in Career Exploration courses at Arizona State University. University undergraduates were particularly appropriate for inclusion in the career-related analysis portion of this dissertation because of their present stage of career development. The developmental perspective of career decision-making suggests that young adulthood (high school and college years) is accompanied by occupational indecision for most people (Erikson, 1957; Super, 1957). However, as explained in Chapter 2 of this dissertation, a minority of young adults do not resolve these normal career indecision

concerns, and are considered to experience indecisiveness, a more chronic form of indecision. Hence, the examination of career indecision in a sample of university undergraduates affords the unique opportunity to study both chronic indecisiveness and the passing developmental phase of career indecision.

These aforementioned students were specifically chosen for inclusion in this study because they represent a particular demographic of university students. Undergraduates enrolled in University College include two groups of ASU students, having either a) not declared a college major at the time of matriculation to ASU, or b) chosen to discontinue their previous college major and have not declared another college major as of the beginning of the current semester. Additionally, all University College students are required to enroll in at least one career course (UNI 150: Major & Career Exploration). Students enrolled in CED 250, the School of Letters and Sciences career exploration course engage with career decision-making curriculum, which is designed to be individually applied. It is certainly possible that undergraduates at ASU not enrolled in career exploration courses may also be uncertain about their major. Moreover, it is highly unlikely, and not expected, that all individuals enrolled in career exploration courses experience career indecision. However, students enrolled in such courses have presumably self-selected into the College because of their current inability to choose a major, and therefore, may be assumed to be in the midst of the career decision-making process. Therefore, this is an ideal sample of university undergraduates to solicit for research involving career indecision.

Part 1

Participants. Participants were 849 undergraduate students enrolled in an online Sociology 100 courses at a large southwestern university. The sample included 245 male and 604 female participants ranging in age from 18 to 61 (*M* = 22.74). The ethnicity of the sample was predominately Caucasian (62%), but also included students identifying as Latino/a (11%), Asian American (6%), African American (5%), Native American (4%), and Other (1%). Eleven percent of participants failed to complete the ethnicity item. Students participating in the study had attended college for an average of 5.84 semesters.

Instruments.

Hewitt and Flett Multidimensional Perfectionism Scale. The 45-item *HFMPS* (Hewitt & Flett, 1991) is a self-report measure designed to measure 3 maladaptive dimensions of perfectionism. The *HFMPS* has 3 subscales, each with 15 items, rated along a 7-point Likert type scale (1=*do not agree at all*, 7=*completely agree*). All three subscales of the MPS have been found to be independently valid (Flett & Hewitt, 2002).

Self Prescribed Perfectionism. The *Self Prescribed Perfectionism* subscale is designed to examine the respondent's tendency to hold excessively high standards for oneself (sample item: "I must always be successful at school or work"). Factor analyses with college students and psychiatric patients confirmed the reliability and validity of this factor, reporting good internal consistency for a research measure (alpha *r* = .86; *M* score = 45.34; *SD* = 15.16: see Hewitt, Flett, Turnbull-Donovan, & Mikail, 1991).

Socially Prescribed Perfectionism. The *Socially Prescribed Perfectionism* subscale is designed to examine the respondent's tendency to perceive that others hold

excessively high standards for oneself (sample item: "Anything I do that is less than excellent will be seen as poor work by those around me"). Factor analyses with college students and psychiatric patients confirmed the reliability and validity of this factor, reporting good internal consistency for a research measure (alpha r = .87; M score = 48.17; SD = 12.88: see Hewitt et al., 1991).

Other Oriented Perfectionism. The *Other Oriented Perfectionism* subscale is designed to examine the respondent's tendency to hold excessively high standards for others (sample item: "I do not have very high standards for those around me"; reverse keyed item). Factor analyses with college students and psychiatric patients confirmed the reliability and validity of this factor, reporting good internal consistency for a research measure (r = .82; M score = 58.44; SD = 12.63: see Hewitt et al., 1991).

Almost Perfect Scale – Revised. The *APS-R* (Slaney, Rice, Mobley, Trippi, & Ashby, 2001) is a 23-item self-report measure designed to measure both adaptive and maladaptive components of perfectionism. The *APS-R* has 3 subscales, rated along a 7-point Likert type scale (1=*strongly disagree*, 7=*strongly agree*). The *High Standards* subscale is designed to measure personal standards for performance (sample item: "I have high expectations for myself"). The *Order* subscale is designed to measure the desire for organization and need for orderliness (sample item: "Neatness is important to me"). Finally, the *Discrepancy* subscale is designed to measure the distress resulting from the perceived discrepancy between personal standards and actual performance (sample item: "I am hardly ever satisfied with my performance"). Means and standard deviations of the three subscales were not reported by Slaney et al. (2001), however, they did note that the

three subscales demonstrated strong validity and internal consistency in a college sample: *High* Standards (.85), *Discrepancy* (.92), *and Order* (.86).

Procedure.

Data collection. During the Fall 2011 semester, potential participants were solicited by the first author via e-mail to participate in data collection that included measures used for the current study, described as a project examining personality and relationships. Students who expressed interest in participating were e-mailed a link to the web-based survey, which included a consent form and five quantitative self-report measures that included a total of 178 items. Eight to 14 days after completing the first set of measures, students were sent a second e-mail link to another six quantitative measures with a combined 262 items. Measures were presented in counterbalanced order to control for ordering effects. The two instruments from data collection that were used in the current study included: *Hewitt and Flett Multidimensional Perfectionism Scale*, *Almost Perfect Scale – Revised*. Demographic characteristics such as age, ethnicity, and educational status were also collected, and completion of instrumentation was considered as implied consent.

Participants were advised that they could discontinue the study at any time without penalty. In addition, although participants were informed that their participation in the proposed study would not directly benefit them, they were informed of the possible contribution of this research to university student retention. Students received five extra credit points in their sociology course for completing both parts of the online survey.

Students (n = 171) who started or completed only the first of the two surveys did not receive credit, nor were their responses used in data analysis for this study.

Data Analysis. There was no missing data for this first sample. Coefficient alphas were computed to obtain internal consistency estimates for each of the perfectionism subscales individually and for the measures. Means and standard deviations of the measures were also obtained. Several structural analysis techniques were employed for the purpose of assessing the underlying structure of the perfectionism measures used in this study, including Latent Class Analysis, Exploratory Factor Analysis, and Confirmatory Factor Analysis.

Latent Class Analysis (LCA; B.O. Muthén, 2004) was used to analyze response patterns to the APS-R and HFMPS subscales for the purpose of, first, determining whether previously identified, distinct subgroups, or classes, of perfectionists could be identified using the APS-R with the current sample. Using the APS-R, researchers have determined there to be three distinct types of perfectionists: adaptive perfectionists, maladaptive perfectionists, and non-perfectionists (e.g., Grzegorek et al., 2004). LCA was also conducted on the APS-R and HFMPS subscales to determine whether an underlying class structure of perfectionism may exist across the two instruments. Five fit indices were used for this analysis: Akaike's information criteria (AIC), Bayesian information criteria (BIC), Lo-Mendell-Rubin ratio test (LMRT), entropy values, and interpretability of the class solution.

The purpose of LCA is identification of classes, or subgroups, of individuals within a sample, with the assumption that sample participants represent a heterogeneous

group comprised of representatives from distinct populations. Class membership is determined based on a particular response pattern to study items. Depending on the pattern of responses, each individual may obtain a fractional non-zero class membership probability to one or more classes, but no individual can be assigned to more than one class. Individual class assignment is based on membership probability value, and individuals are assigned to the class for which they have the highest probability of belonging. Although LCA can accommodate many variable structures, authors of the APS-R conceive of perfectionism as a type or kind. Therefore, LCA models in the present study contain manifest continuous variables to identify categorical latent variables.

As there is considerable disagreement amongst researchers about the structure of perfectionism, as a categorical or a continuous construct, factor analysis (FA) was employed to test the extent to which the five subscales used in this study (the SOP and SPP subscales of the HFMPS, and the HS, O, and D subscales of the APS-R) function as continuous, latent variables. Unlike LCA, FA does not assume different subpopulations of individuals, subsequently assigning individuals to a class or group. Rather, FA assumes that all individuals belong to one, homogeneous population, and differences between individuals are a result of individual differences on factor scores. Exploratory and Confirmatory Analyses were used in conjunction in the current study, the analysis occurring in two stages. In the first stage, the sample was divided into two similarly sized groups and an Exploratory Factor Analysis (EFA) was conducted on a randomly selected half of the sample (n = 425) to determine the underlying factor structure of the

previously mentioned 5 perfectionism subscales. Principal Axis Factoring (PAF) was chosen for this analysis because of the documented tendency for Principal Components Analysis (PCA) to overestimate the number of factors in the model (Ledesma & Volero-Mora, 2007), and oblique promax rotation (Hendrickson & White, 1964) was utilized to best identify the underlying dimensions of perfectionism should they not be orthogonally related. Multiple criteria were adopted to determine the number of factors to retain from the EFA: the scree test, parallel analysis, and the interpretability of the factor solution.

A Confirmatory Factor Analysis (CFA) was conducted on the second half of the sample (n = 424) based upon the solution derived from the EFA. Four fit indices were used for this analysis: the comparative fit index (CFI), the Tucker-Lewis index (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). Evaluation of overall model fit can be made by considering the values of the four aforementioned indices; however, as discussed extensively by Fabrigar, Wegener, MacCallum, and Strahan (1999) guidelines may vary considerably.

Part 2

Participants. Participants included students enrolled in Career Exploration courses in the University College or the School of Letters and Sciences at Arizona State University. The sample included 270 participants (137 males, 133 females, 1 not reported) ranging in age from 18 to 41 (M = 19.98). The ethnicity of the sample was predominately Caucasian (50.2%), but also included students identifying as Latino/a (21.1%), African American (8%), Asian American (5.9%), Native American (2.6%), Multiracial (6.6%) and Other (5.5%). One participant, representing 0.4% of the sample

failed to complete the ethnicity item. Students participating in the study had attended college for an average of 3.98 semesters, with a mean GPA of $M = 2.93$.

Information about degree of career decidedness ("How decided about your career direction are you at this point in time?") and importance of career decidedness ("How important is making a career decision at this point in time?") was also collected. Responses for both of these items were along a 6-point Likert-type scale (1 = Strongly Disagree, 6 = Strongly Agree). Roughly one quarter of participants (26.2%) reported some degree of undecidedness about their career direction, which was ascertained by calculating the proportion of responses to this item that included: Strongly Disagree, Moderately Disagree, and Slightly Disagree. Subsequently, 73.8% of participants reported some degree of decidedness about their career direction, which was ascertained by calculating the proportion of responses to this item that included: Strongly Agree, Agree, and Slightly Agree. Using the same scoring procedure, it was determined that 85.6% of participants reported some degree of importance related to making a career decision at this point in time, while 14.4% of participants reported this decision to be at least somewhat unimportant at this time.

Instruments.

Perfectionism. Participants completed the previously mentioned pool of 143 items representing the three subscales of the Almost Perfect Scale – Revised, and the three subscales of the Hewitt and Flett Multidimensional Perfectionism Scale.

Career Indecision Profile - 65. The *Career Decision Profile – 65* (CIP-65; Brown et al., 2011) is a 65-item self-report measure designed to measure four sources of

career indecision. Participants rate the extent to which they agree with career-related statements using a 6-point scale (*Completely Disagree* to *Completely Agree*).

The measure represents a four factor model of career indecision that was meta-analytically derived from 24 published correlation matrices that each included measurement of at least one variable related to career indecision. Each of the four multi-faceted factors of the CIP-65 are described below.

Neuroticism/Negative Affectivity. The Neuroticism/Negative Affectivity subscale includes 21 items that measure chronic indecisiveness and negative affectivity (sample item: "When I experience a setback, it takes me a long time to feel good again"). More specifically, this factor is defined by (a) high levels of trait and state anxiety, depressive affect, and trait neuroticism, (b) low levels of self-esteem, psychological hardiness, and general problem solving confidence, (c) a tendency to focus on fear of commitment, avoidant coping style, and dependent decision-making strategies, and (d) an external locus of control, and the belief that life is controlled by chance or powerful others.

Choice/Commitment Anxiety. The 24 items of the Choice/Commitment Anxiety subscale measure a lack of information about self and/or career options, as well as approach-approach conflict, which is the inability to decide between competing appealing options (sample item: "I am uncomfortable committing myself to a specific career direction").

Lack of Readiness/Immaturity. The Lack of Readiness/Immaturity subscale includes 15 items that measure identity diffusion, lack of self-clarity, low career decision-making self-efficacy beliefs, immature career attitudes, unstable career goals, lack of

motivation to career choice, and low conscientiousness (sample item: "I strive hard to achieve my goals"; reverse coded).

Interpersonal Conflicts and Barriers. The 5 items of the Interpersonal Conflicts and Barriers subscale were designed to indicate external barriers to preferable career options and conflict with significant others (sample item: "I'd be going against the wishes of someone important to me if I follow the career path that most interests me").

Because the CIP-65 was developed only recently, at the time of this dissertation the instrument has been unexamined by researchers other than the authors of the measure (Hacker, Carr, Abrams, & Brown, 2013; Brown et al., 2011). Brown et al. (2011) used principal factor analysis and maximum likelihood analysis to verify the four-factor structure of the instrument, and initial psychometric analysis indicated high Cronbach alpha estimates for each of the four factors: *Neuroticism/Negative Affectivity* (.95), *Choice/Commitment Anxiety* (.96), *Lack of Readiness/Immaturity* (.89), *Interpersonal Conflicts and Barriers* (.88). Means and standard deviations were not reported.

Procedure.

Data Collection. During the Fall 2011 and Spring 2012 semesters the principal investigator sent an e-mail to every instructor of Career Exploration courses in University College (UNI 150, UNI 250) and School of Letters and Sciences (CED 250) at Arizona State University to solicit their cooperation in data collection for the present study. Instructors were informed of the purpose of the study and asked to administer a collection of four instruments to students during class, either via pencil and paper or online survey. Instructors were told that the questionnaires were estimated to take 20-30 minutes to

complete. Instructors were also encouraged to give students 5 extra credit points for participation. Those instructors who responded in the affirmative to the solicitation e-mail were given the link to the online survey if their classrooms were equipped with student computers, or were delivered paper survey packets in an amount that matched their course enrollment.

Students who agreed to participate took the survey in-class via one of two ways, either by paper survey packet or by visiting the online survey link which was provided to them by their course instructor on the day of survey administration. Instrumentation included a consent form and four quantitative self-report measures, with a combined 143 items. Both paper and online measures were presented in counterbalanced order to control for ordering effects. Instrumentation included: *Hewitt and Flett Multidimensional Perfectionism Scale* subscales *Self-Oriented Perfectionism* and *Socially Prescribed Perfectionism* (Hewitt & Flett, 1991), *Almost Perfect Scale – Revised* (Slaney, Rice, Mobley, Trippi, & Ashby, 2001), and the *Career Decision Profile – 65* (Brown et al., 2011). Demographic characteristics such as age, ethnicity, and educational status were collected. Information about degree of career decidedness and importance of career decidedness were also collected. Completion of instrumentation was considered implied consent.

Participants were advised that they could discontinue the study at any time without penalty. In addition, although participants were informed that their participation in the proposed study would not directly benefit them, they were informed of the possible contribution of this research to university student retention. All course instructors who

assisted in data collection for this study reported that students received five extra credit points in their respective Career Exploration course for completing the survey. Students (n = 3) who completed only the first few items of the survey did not receive credit.

Data Analysis. Questionnaire packets from 37 of the 270 participants were missing data (Range: 1 – 6 items per participant, Md = 2 items per participant). Although the actual number of missing items comprised 0.101% of the data set, Little's MCAR test was conducted to establish whether data could be considered missing at complete random (MACR). Results of this test suggested it could not be concluded that data were missing completely at random, $X^2(4223, N = 849) = 4571.81$, $p < .05$. However, because there were no significant differences on any demographic variable between participants who were missing data and participants who were not missing data, it was concluded that data were most likely missing at random (MAR), and missing values were imputed using full information maximum likelihood (FIML) technique in Mplus.

One hundred thirty-three individuals completed the study materials online and 137 individuals did so via paper and pencil. Multiple t tests were performed to compare the mean scores for these two subsamples across every instrument in the current study to determine whether data collection modality produced significant mean differences between groups. Results indicated non-significant differences between subsamples on the CIP-65 ($t(268) = 1.070$, $p = .102$), the APS-R ($t(268) = .508$, $p = .612$), and the HFMPS ($t(268) = .096$, $p = .924$).

Coefficient alphas were computed to obtain internal consistency estimates for each of the perfectionism subscales individually and for the four career indecision

factors. Means and standard deviations of the measures were also obtained. Exploratory factor analysis with oblique rotation using promax was employed for the purpose of determining whether the 4-factor structure of the CIP-65 found by Brown et al. (2011) could be replicated with the current sample. Then, four unordered sets of hierarchical regression analyses were conducted to determine the pattern of perfectionism variables that are associated with specific domains of career indecision. Regression analyses were unordered to determine whether the set of perfectionism dimensions or the set of perfectionism classes was a better predictor of career indecision factors.

Chapter IV. Results

The following chapter presents the result of this dissertation in two main sections. The first section is a report of the psychometric properties of perfectionism via the results of the latent class analysis, exploratory factor analysis, confirmatory factor analysis, and factor mixture model, which sought to identify distinct classes and factors underlying the construct of perfectionism. As mentioned previously, Sample 1 was used in this first section of analyses so that latent classes and latent factors could be extracted from data collected from a presumably general sample of university students.

The second section explores the utility of the structure of perfectionism identified in the first section to predict the four dimensions of career indecision identified by Brown et al. (2011): Indecisiveness/Trait Negative Affect, Interpersonal Conflicts and Barriers, Lack of Information, and Lack of Readiness factors of the same measure. As was also mentioned previously, Sample 2 was used in this second section of analyses for the purpose of examining the relation of perfectionism and career indecision with a sample of college students who are undecided on their major and are actively exploring career options via career exploration courses.

Psychometric Properties of Perfectionism

Descriptive statistics and score reliability estimates for each measure were produced for the purpose of examining the internal consistency of each instrument. Table 1 demonstrates means, standard deviations, and reliability estimates of each measure for the overall sample, which were found to be comparable to those obtained in other studies of university students using the same instruments.

Table 1. Means, standard deviations, Cronbach's alphas, and intercorrelations of scores on perfectionism measures.

	M	SD	1	2	3	4	5	6
1. APS-HS	39.32	7.22	(.92)					
2. APS-D	38.91	15.56	-.11**	(.95)				
3. APS-O	20.98	4.94	.50**	-.14	(.93)			
4. SOP	70.21	13.70	.47**	.16**	.28**	(.88)		
5. OOP	61.33	9.92	.22**	.04	.10**	.46**	(.66)	
6. SPP	54.49	11.47	-.02	.45**	-.01	.33**	.28**	(.81)

Note. APS-HS = APS High Standards scores, APS-D = APS Discrepancy scores, APS-O = APS Organization scores, SOP = MPS Self-oriented Perfectionism scores, OOP = MPS Other-oriented Perfectionism scores, SPP = MPS Socially-prescribed Perfectionism scores. Subscale Cronbach's alpha values are presented on the diagonal.

** p < .01.

Latent Class Analyses. For this study, the Mplus 7.1 (Muthén & Muthén, 1998-2012) statistical software package was employed to run the latent class analysis. Mplus utilizes full information maximum likelihood estimates to compute the parameters of an LCA model, standard errors and fit statistics. To ensure that the estimates represented global likelihood maxima solutions, 200 random start values were used. Three subscales of the APS-R (High Standards, Discrepancy, Order) as well as three subscales of the HFMPS (Self-Oriented Perfectionism, Socially Prescribed Perfectionism, Other Oriented) were included in the LCA process as indicators of latent class. First, an LCA of the three subscales of the APS-R was conducted to verify the structure obtained by Grzegorek et al (2004). This was followed by an LCA of the three subscales of the HFMPS, with the purpose of identifying whether a class structure fit this second instrument. Then, the six subscales were combined to determine whether there was overlap or commonality between the classes derived for each instrument. Finally, a

univariate analysis of variance was conducted to determine whether there were latent class mean differences on the six perfectionism subscales.

For each of the three LCA model analyses, models with different numbers of classes were examined, beginning with the one-class model, which expectedly produced only the observed means in the data. Tests of one class models were followed by tests of incrementally larger models, increasing model size by one class per model until the model could no longer be improved. Ultimately, a balance was attempted between the collective results of the fit statistics and substantive meaning in order to conclude the number of appropriate classes.

APS-R Latent Class Analysis Results. Table 2 includes the model fit indices for the LCA investigation using the APS-R, specifically the log likelihood ratio, Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), and the p-values for the Lo-Mendell-Rubin likelihood ratio test (LMRT). Row 1 of the table contains the fit statistics for the one-class model, row 2 for the two-class model, etc.

Table 2. Summary of log likelihood and goodness-of-fit criteria for six possible models of APS-R subscales.

	LL	AIC	BIC	ABIC	LMRT-Adjusted *p* Value
One-class Model	-8978.37	17968.74	17977.20	17978.15	NA
Two-class Model	-8839.04	17698.08	17745.52	17713.76	.000
Three-class Model	-8769.18	17566.36	17632.77	17588.31	.000
Four-class Model	-8724.78	17485.56	17570.96	17513.79	.000
Five-class Model	-8709.98	17463.95	17568.32	17498.46	.678
Six-class Model	-8693.99	17439.99	17563.33	17480.76	.030

Note: LL = log likelihood; AIC = Akaike information criterion; BIC = Bayesian information criterion; ABIC = adjusted Bayesian information criterion; LMRT-Adjusted = Lo-Mendell-Rubin ratio test *p* values. Typically, for this index, a *p* value less than .05 indicates that the model with one less class is rejected for the estimated model.

At least three classes were anticipated for the APS-R, which would provide evidence for the theoretical framework of the model of perfectionism proposed by Slaney et al., 1996,

and replicate previous findings (e.g., Grzegorek et al., 2004; Mobley et al., 2005). However, six models were tested based on 100 iterations of 200 randomly selected starting scores for the High Standards, Order, and Discrepancy subscales. The latent class model with the best fit is that which has the lowest values for the majority of the aforementioned fit indices. For the APS-R LCA, the majority of the fit indices steadily decreased as the number of classes increased with no increase with subsequent models to indicate a model of best fit. More specifically, only one of five fit indices used indicated a model fit of the data. Results did not indicate a point of optimization, a point at which the majority of fit indices suggested the same number of classes for the model. Therefore the following class solution, which is indicated by only one fit index, should be conservatively considered and done so with awareness that a model indicated by only one fit index does not have sufficient support.

The sole fit index that did indicate a class solution of the APS-R was the LMRT. The LMRT should indicate the best fit model as that immediately previous to the first model that produces (Nylund, Asparouhov, & Muthén, 2007). As Table 2 demonstrates, this would indicate that the four-class model is best fit because the LMRT *p*-value, which was non-significant ($p = .678$) at the five-class model level. However, the LMRT did indicate significance at the six-class level ($p = .030$). As this pattern was not replicated by the other fit indices, such that no other index increased at the six-class level, nor does it fit with theoretical or empirical framework of the APS-R, the six-class model was not seriously considered a viable best fit.

The four-class model fit of the LMRT was also unexpected, as it also does not fit with the theoretical or empirical framework of the APS-R, positing a three-class structure of the APS-R, and the underlying construct of perfectionism. However, as indicated in Figure 1, the mean response pattern for the first three classes on the High Standards and Discrepancy subscales of the APS-R appear to generally support previous findings (Grzegorek et al., 2004; Rice & Dellwo, 2001; Rice & Lapsley, 2001; Rice & Slaney, 2002).

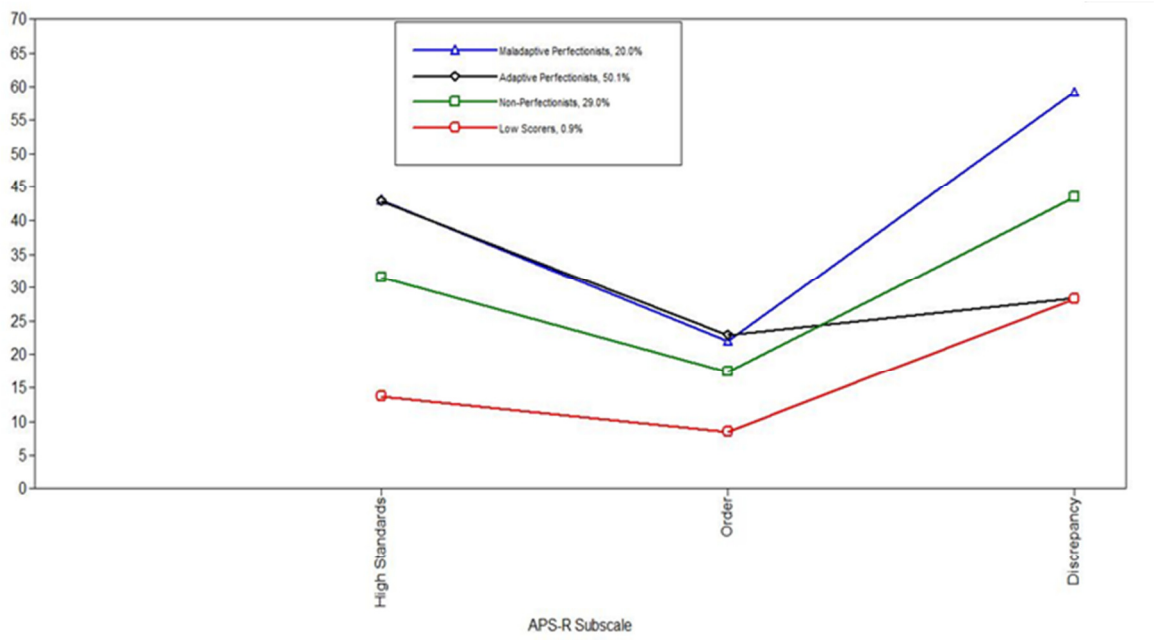

Figure 1. Three-class latent class analysis profile plot for APS-R subscales.

The first class closely adheres to the response pattern of the subgroup termed "maladaptive perfectionists", which is indicated by Discrepancy scores significantly higher than the other classes, coupled with elevated High Standards scores. The second class fits the response pattern of "adaptive perfectionists", which is indicated by elevated

High Standards scores, and low Discrepancy scores. The third class most likely represents the "non-perfectionist" subgroup, and fits the expected pattern of lower High Standards scores than either the adaptive perfectionist or the maladaptive perfectionist subgroups, and Discrepancy scores lower than the non-perfectionist subgroup, and either the same as or higher than the adaptive perfectionist subgroup. Consistent with Rice and Ashby's (2007) determination that the Order subscale of the APS is not necessary to discriminate between adaptive and maladaptive perfectionist groups, the current study found non-significant differences between the mean Order scores of these two classes. Order subscale scores were found to be significantly lower for the non-perfectionist subgroup than either the adaptive perfectionist or maladaptive perfectionist subgroups.

As previously mentioned, the existence of a fourth latent class underlying the APS-R does not support earlier findings suggesting a three class model. Further, the fourth class (n = 7) in this study was substantially smaller than the other three classes. While this researcher originally suspected this fourth class to be a small group representing individuals who arbitrarily responded to each item, closer inspection of item response patterns indicated that individuals within this subgroup consistently responded in the negative to survey items (i.e., disagreed with most items). As twenty-five of the 143 survey items are reverse coded, arbitrary responding in the negative would not create this sort of pattern, nor yield the considerably low group means this class had for each subscale, as is indicated in Figure 1. The class probability scores for this four-class model listed in Table 3 indicate a strong probability (88.7%) that these individuals are most likely members of this class.

Table 3. Average probabilities of most likely class membership (Row) by class (Column) for APS-R subscales.

	Class 1	Class 2	Class 3	Class 4
Class 1	**.992**	.000	.000	.008
Class 2	.000	**.865**	.084	.051
Class 3	.000	.034	**.928**	.038
Class 4	.002	.050	.061	**.887**

Note. Entropy for the four-class model = .82. Entropy ranges from 0 to 1, with higher scores indicating greater classification accuracy. Values in boldface type indicate the probability of correct classification within each of these classes.

Analysis of variance (ANOVA) analyses presented in Table 4 support this pattern, and reveal significant differences in responding between this fourth class and each of the other classes on each APS-R subscale. While it seems unlikely that seven of 849 individuals would have such a unique, meaningful response style, it is possible that these individuals do not adhere to the underlying latent structure of this particular model of perfectionism.

Table 4. Univariate analysis of variance of APS subscale scores across perfectionism classes.

	Adaptive Perfectionists$_a$ (n=434)		Maladaptive Perfectionists$_b$ (n=165)		Non-Perfectionists$_c$ (n=231)		Low Scoring Group$_d$ (n=7)				
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*df*	*F*	η2
High Standards	42.95$_b$	4.12	43.41$_a$	4.08	31.16	4.19	13.14	3.13	3, 845	584.426**	0.67
Order	22.90$_b$	3.91	22.06$_a$	4.52	17.33	4.26	8.29	4.35	3, 845	121.055**	0.30
Discrepancy	28.00$_d$	8.64	60.25	9.09	43.77	10.29	27.86$_a$	11.82	3, 845	514.64**	0.65

Note. Means that do not share subscripts differ at $p < .05$ in the Tukey honestly significant difference comparison.
**$p < .01$.

Table 4 also reports results of posthoc tests which were conducted after the omnibus test indicated significant mean differences between classes extracted from the APS-R. Posthoc analyses showed considerable differences between the four extracted classes on each of the APS-R subscales with only two exceptions. First, non-significant mean differences were found for the Adaptive Perfectionist and Maladaptive Perfectionist groups on the High Standards and Order subscales. This finding was not surprising,

considering that Rice and Ashby (2007) have noted that these two groups are typically characterized by different mean scores on only the Discrepancy subscale, Maladaptive Perfectionists reporting higher Discrepancy scores than Adaptive Perfectionists. The second set of non-significant mean differences was found between the Adaptive Perfectionist and Low-Scoring groups on the Discrepancy Subscale. Although these two groups appear to share low Discrepancy scores, results show that they significantly differ in other ways, such that the Adaptive Perfectionist group produced high scores, while the Low-Scoring group produced low scores, on the Order and High Standards subscales.

HFMPS Latent Class Analysis Results. A Latent Class Analysis was performed on the three subscales of the HFMPS (Self Oriented Perfectionism, Other Oriented Perfectionism, Socially Prescribed Perfectionism) with the purpose of thoroughly investigating the possible structure of perfectionism. To date, no known publications have determined whether there may be a latent class structure underlying the HFMPS. The absence of such analyses in the literature is most likely indicative of the instrument authors' conceptualization of perfectionism and subsequent creation of the HFMPS as dimensional, with continuous latent factors rather than categorical latent classes. As such, it would seem inappropriate to use LCA analyses with the HFMPS. Nonetheless, because one of the primary purposes of the current study is to better understand the latent structure of perfectionism, determining the existence of latent classes of the HFMPS seems both appropriate and necessary.

The model fit indices for the LCA investigation using the HFMPS are presented in Table 5, specifically the log likelihood ratio, Akaike Information Criterion (AIC),

Bayesian Information Criterion (BIC), and the p-values for the Lo-Mendell-Rubin likelihood ratio test (LMRT).

Table 5. Summary of log likelihood and goodness-of-fit criteria for six possible models of HFMPS subscales.

	LL	AIC	BIC	ABIC	LMRT-Adjusted *p* Value
One-class Model	-9854.50	19721.00	19749.47	19730.41	NA
Two-class Model	-9741.04	19502.08	19549.52	19517.77	.000
Three-class Model	-9692.44	19412.88	19479.30	19434.84	.002
Four-class Model	-9670.92	19377.83	19463.23	19406.06	.144
Five-class Model	-9656.37	19356.74	19461.11	19391.24	.179
Six-class Model	-9636.11	19324.22	19447.56	19365.00	.480

Note: LL = log likelihood; AIC = Akaike information criterion; BIC = Bayesian information criterion; ABIC = adjusted Bayesian information criterion; LMRT-Adjusted = Lo-Mendell-Rubin ratio test *p* values. Typically, for this index, a *p* value less than .05 indicates that the model with one less class is rejected for the estimated model.

Because of the absence of an *a priori* theoretical and limited empirical findings (Rice & Mirzadeh, 2000) related to the latent class structure of the HFMPS, this author took an exploratory LCA approach to this analysis, six models were tested based on 100 iterations of 200 randomly selected starting scores for each of the three HFMPS subscales. At least three classes were anticipated for the HFMPS, which may provide support for the possible categorical distinction between Self Oriented, Other Oriented, and Socially Prescribed subgroups of perfectionism. The AIC, BIC, and ABIC model fit indices steadily decreased as the number of classes increased with no increase with subsequent models to indicate a model of best fit. Indicating a similar pattern, the *p*-value of the LMRT was non-significant beginning with the four-class model ($p = .144$) and did not return to significance for the five-class or six-class models.

Producing a similar pattern of results as the LCA of the APS-R, only one of five fit indices used indicated a model fit of the data. Results did not indicate a point of optimization. The sole fit index that did indicate a class solution of the HFMPS was the

LMRT. Therefore, the following class solution should be conservatively considered.

The class probability scores for this three-class model is listed in Table 6.

Table 6. Average probabilities of most likely class membership (Row) by class (Column) for HFMPS subscales.

	Class 1	Class 2	Class 3
High-Scoring Group	**.893**	.063	.044
Moderate-Scoring Group	.182	**.818**	.000
Low-Scoring Group	.201	.000	**.798**

Note: Entropy for the four-class model = .72. Entropy ranges from 0 to 1, with higher scores indicating greater classification accuracy. Values in boldface type indicate the probability of correct classification within each of these classes.

Figure 2 presents the profiles for all three classes, indicated that there were three distinct groups.

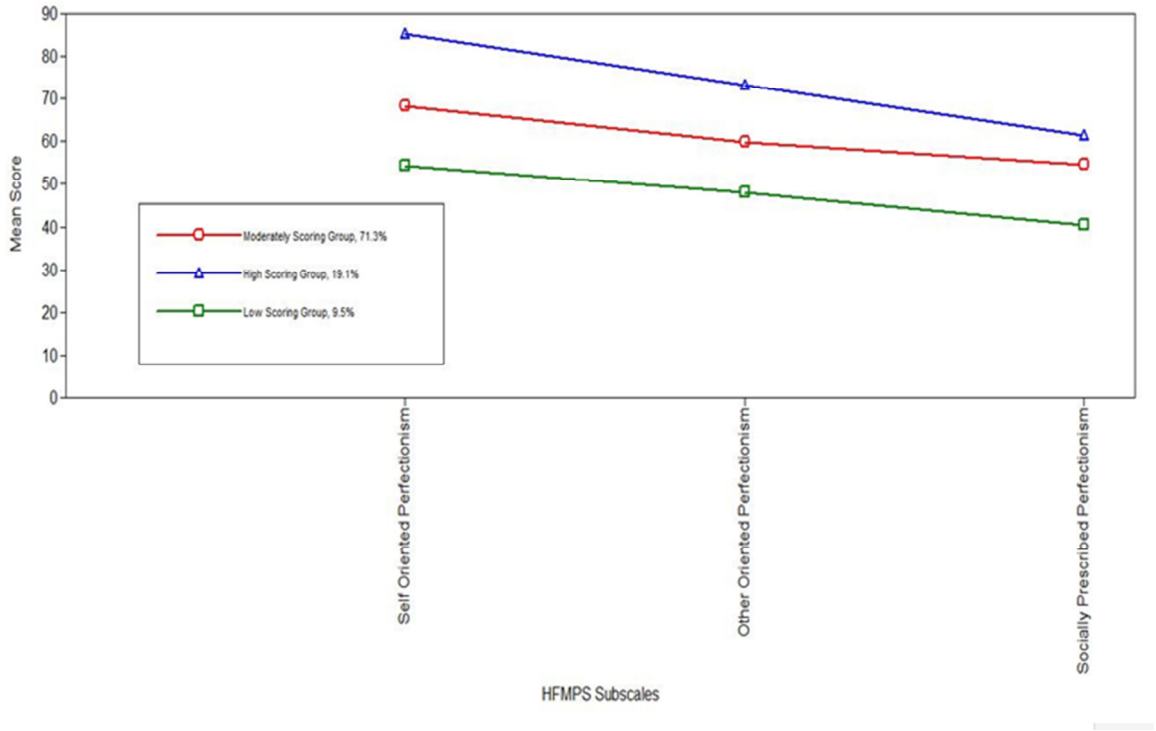

Figure 2. Three-class latent class analysis profile plot for HFMPS subscales.

The estimated mean scores for the three subscales were similar within subgroup such that each subgroup generated considerably similar estimated mean scores across all three subscales. However, the size of these estimated mean scores differed across groups. The first subgroup, with the highest estimated mean scores on all three HFMPS subscales, represented 19.1% of the sample. The third subgroup, with the lowest estimated mean scores on all three HFMPS subscales, represented 9.5% of the sample. The majority of the sample (71.3%), appeared to belong to the second subgroup and consistently scored between the first and third subgroups on all three HFMPS subscales. Table 7 reports the results of an omnibus test which indicated significant mean differences between groups on the HFMPS measure. Post hoc analyses indicated that each of the three subgroups responded significantly different from each other on all three subscales, they were each subsequently named in relation to the unique scoring patterns they produced. The High Scoring group, named for its elevated scores, reported higher scores on the SOP, OOP, and SPP subscales than either the Moderate Scoring group or the Low Scoring group. The Moderate Scoring group scores were significantly lower than those of the High Scoring group, and also significantly higher than those of the Low Scoring group. Finally, the Low Scoring group produced significantly lower mean scores than the Moderately Scoring group and the High Scoring group.

Table 7. Univariate analysis of variance of HFMPS subscale scores across perfectionism classes.

	High Scoring$_a$ (n=150)		Moderate Scoring$_b$ (n=633)		Low Scoring$_c$ (n=66)				
	M	*SD*	*M*	*SD*	*M*	*SD*	*df*	*F*	η2
SOP	87.13	8.31	68.07	10.62	52.26	12.68	2, 846	308.468**	0.42
OOP	74.57	7.03	59.81	6.76	45.82	7.48	2, 846	463.481**	0.52
SPP	62.39	10.75	54.34	9.85	37.94	9.30	2, 846	137.986**	0.25

Note: SOP = Self Oriented Perfectionism, OOP = Other Oriented Perfectionism, SPP = Socially Prescribed Perfectionism. Means that do not share subscripts differ at $p < .05$ in the Tukey honestly significant difference comparison.

**$p < .01$.

This such pattern of responding across the three groups indicated that they may represent different degrees of the same latent, continuous dimension; one subgroup scored highly on this dimension, one scored moderately, and one scored lowest. While it is uncertain what this latent dimension may represent via LCA alone, results indicate that the latent dimension (and therefore the subscales of the HFMPS) is best conceptualized to represent quantitative differences within a heterogeneous group rather than qualitative differences between three separate, homogeneous subgroups. This conceptualization was also the conclusion derived, using taxometric analytic techniques, from the only known study to examine the HFMPS both dimensionally and categorically (Broman-Fulks et al., 2008).

Combined APS-R and HFMPS Latent Class Analysis Results. A combined Latent Class Analysis was performed on the three subscales of the HFMPS and the three subscales of the APS-R with the purpose of thoroughly investigating the possible categorical latent structure of perfectionism that may underlie these two instruments. This author took an exploratory LCA approach to this analysis, as there is no available empirical precedent for the LCA analyses of these two full instruments together. Nine

models were tested based on 100 iterations of 200 randomly selected starting scores for each of the three HFMPS subscales. I chose to increase the number of models tested to nine based on the information obtained from the two previous LCA results, which yielded virtually no support for one through six classes of either the APS-R or the HFMPS. Nine models were thought to be sufficient to observe whether a meaningful pattern of classes could be produced when the two full instruments were analyzed together, while also allowing for the emergence of additional classes not represented by the six collective subscales of the APS-R and the HFMPS. At least six classes were anticipated, three classes representing the subgroups of the APS-R (adaptive perfectionists, maladaptive perfectionists, non-perfectionists) identified by previous studies, and three classes representing either the three subscales of the HFMPS (self-oriented, other-oriented, socially prescribed), or the high, medium, and low pattern of perfectionism scores indicated by the LMRT fit indices of the HFMPS LCA in this study. The model fit indices for the LCA investigation using these two full measures are presented in Table 8, including the log likelihood ratio, AIC, BIC, and the p-values for the LMRT.

Table 8. Summary of log likelihood and goodness-of-fit criteria for nine possible models of the three APS-R subscales and the three HFMPS subscales.

	LL	AIC	BIC	ABIC	LMRT-Adjusted *p* Value
One-class Model	-18832.871	37689.742	37746.670	37708.562	NA
Two-class Model	-18593.638	37225.275	37315.412	37255.074	0.012
Three-class Model	-18460.903	36973.806	37097.152	37014.583	0.000
Four-class Model	-18359.293	36784.586	36941.140	36836.341	0.000
Five-class Model	-18307.321	36694.643	36884.405	36757.377	0.092
Six-class Model	-18260.936	36615.872	36838.842	36689.584	0.024
Seven-class Model	-18244.420	36556.839	36813.018	36641.530	0.204
Eight-class Model	-18196.522	36515.044	36804.431	36610.713	0.220
Nine-class Model	-18171.177	36478.354	36800.950	36585.003	0.332

Note: LL = log likelihood; AIC = Akaike information criterion; BIC = Bayesian information criterion; ABIC = adjusted Bayesian information criterion; LMRT-Adjusted = Lo-Mendell-Rubin ratio test *p* values. Typically, for this index, a *p* value less than .05 indicates that the model with one less class is rejected for the estimated model.

The log likelihood ratio, AIC, BIC, and ABIC model fit indices steadily decreased as the number of classes increased with no increase with subsequent models to indicate a model of best fit. The *p*-value of the LMRT was non-significant for the five-class model (p = .092), returned to significance for the six-class model (p = .024), and was then non-significant again for the seven, eight, and nine-class models. Using the previously discussed recommendation of Nylund et al. (2007), four classes were retained with strong class probability predictions (see Table 9). However, paralleling the results of the LCAs of the APS-R and HFMPS separately, a combined analysis of these instruments did not produce a class model of global fit. The LMRT fit index was the only indicator of a class structure in this third LCA. Therefore, results are reported with expectation that they be conservatively interpreted.

Table 9. Average probabilities of most likely class membership (Row) by class (Column) for APS-R and HFMPS subscales.

	Class 1	Class 2	Class 3	Class 4
Class 1	**.811**	.038	.038	.034
Class 2	.064	**.787**	.147	.002
Class 3	.033	.036	**.903**	.028
Class 4	.079	.000	.050	**.870**

Note. Entropy for the four-class model = .77. Entropy ranges from 0 to 1, with higher scores indicating greater classification accuracy. Values in boldface type indicate the probability of correct classification within each of these classes.

The profiles for all four classes are presented in Figure 3. The profiles took on similar features of the LCA classes determined from the LCA of the APS-R, as well as features of the classes extracted from the LCA analysis of the HFMPS. Therefore class profiles found in the 4-class, combined APS-R and HFMPS model will be discussed in comparison to these aforementioned analyses.

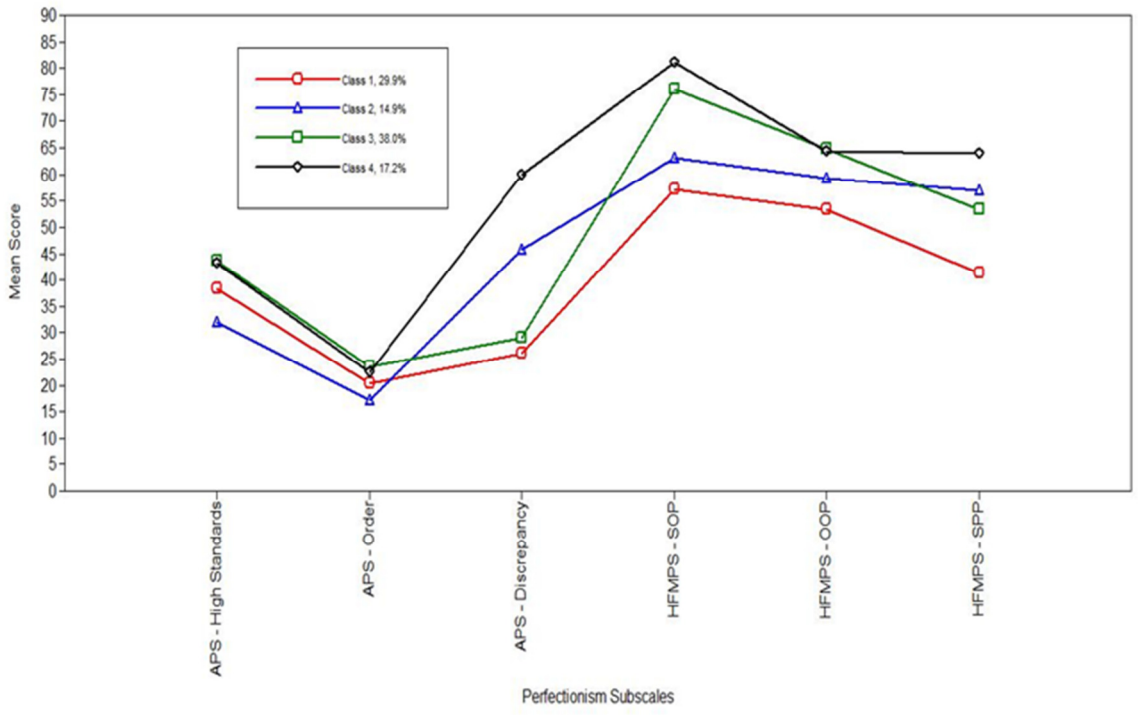

Figure 3. Four-class latent class analysis profile plot for six perfectionism subscales.

An omnibus test following the LCA indicated significant mean differences between the four classes. Subsequent post hoc analyses indicated where those significant differences existed. Results of both analyses are presented in Table 10.

Table 10. Univariate analyses of variance of APS-R and HFMPS subscale scores across perfectionism classes.

	Class 1_a (n=121)		Class 2_b (n=256)		Class 3_c (n=327)		Class 4_d (n=145)				
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*df*	*F*	η2
APS-HS	37.95	5.65	31.92	6.02	43.78_d	3.91	43.47_c	4.52	3, 845	311.961**	0.53
APS-O	20.06	4.53	17.23	4.44	23.48_d	3.72	22.72_c	4.20	3, 845	119.928**	0.30
APS-D	25.49	7.14	46.43	9.22	28.45	8.79	60.42	9.57	3, 845	592.126**	0.68
HFMPS-SOP	55.93	9.50	62.88	10.19	76.09	10.16	81.79	11.46	3, 845	216.736**	0.43
HFMPS-OOP	52.60	8.88	59.32	7.79	64.82_d	8.91	64.30_c	10.92	3, 845	64.373**	0.19
HFMPS-SPP	40.33	8.76	57.17	8.10	53.33	9.13	64.17	11.31	3, 845	158.067**	0.36

Note. APS-HS = High Standards, APS-O = Order, APS-D = Discrepancy, HFMSP-SOP = Self Oriented Perfectionism, HFMPS-OOP = Other Oriented Perfectionism, HFMPS-SPP = Socially Prescribed Perfectionism. Means that do not share subscripts differ at $p < .05$ in the Tukey honestly significant difference comparison.
**$p < .01$.

In this final LCA, the third class was the largest of the four classes (38%), and mimicked the pattern of the "adaptive perfectionist" subgroup from the APS-R LCA with regard to sample estimated mean scores on the High Standards (high), Order (moderate), and Discrepancy (low) subscales. Class 3 also had a pattern of moderate estimated mean scores across each of the HFMPS SOP, OOP, and SPP subscales.

Class 4, representing 17.2% of sample, mimicked the pattern of the "maladaptive perfectionist" subgroup from the LCA of the APS-R, with sample estimated mean scores on the High Standards (high), Order (moderate), and Discrepancy (high) subscales. Class 4 also produced the highest estimated mean scores across each of the HFMPS subscales. The only non-significant estimated mean differences for Class 4 were in relation to Class 3, such that these two classes reported similar High Standards, Order, and OOP scores.

This pattern of scores for these two groups on the High Standards and Order subscales were observed previously in this study during the LCA of the APS-R alone and, again, fit the expected relationship others have reported to exist between these two groups. Results also indicted non-significant differences between Classes 3 and 4 on the OOP scale. Although there is no theoretical or empirical precedent for this finding, results indicate that these two classes, or groups, may have similar, high expectations of others.

Class 2 produced scores that were significantly different from all other classes on every subscale. Class 2 closely resembled the "non-perfectionist" subgroup pattern of the High Standards (high), Order (low), and Discrepancy (moderate) subscales of the APS-R LCA. This second class also produced generally lower scores on the HFMPS than either the adaptive perfectionists (Class 3) or maladaptive perfectionists (Class 4), the one exception being Class 2 SPP scores that were significantly higher than those of Class 3.

Class 1 represented 29.9% of the sample and revealed a similar pattern of scores on the APS-R subscales as Class 3. Despite this similarity, Class 1 scores were consistently lower than those of Class 3. Moreover, Class 1 was significantly different from each of the other three classes on every perfectionism subscale. Class 1 also produced the lowest HFMPS subscales scores. This pattern of scores for Class 1 generally indicated that this class includes individuals who do not report particularly high expectations for self or others, do not place considerable importance on being organized, and do not feel there is discrepancy between their personal standards and what they achieve. Although this final group seems to generally lack perfectionistic tendencies, they differ from the non-perfectionist (Class 2) group in that they have slightly, and

statistically significantly, higher personal standards and value for personal organization than the non-perfectionists.

The third LCA did not produce a point of optimization for a combined (APS-R and HFMPS). Although the LMRT results indicated a general pattern to the four classes that is similar to the dimensional pattern found from the HFMPS LCA, and is also similar to the pattern that resulted from the APS-R LCA, one fit index is not sufficient to determine the class structure of these instruments. This such pattern of results appears to lend possible support for an inherently dimensional latent structure of perfectionism when measured using the APS-R and HFMPS.

Factor Analytic Modeling. For this study, both SPSS 21.0 and the Mplus 7.1 (Muthén & Muthén, 1998-2012) statistical software package were employed to run factor analytic models. Three subscales of the APS-R (High Standards, Discrepancy, Order) as well as three subscales of the HFMPS (Self-Oriented Perfectionism, Socially Prescribed Perfectionism, Other Oriented) were included in the EFA process as indicators of latent factors.

First, an item-level EFA of the six subscales (3 APS-R subscales, 3 HFMPS subscales) using Principal Axis Factoring with promax rotation was conducted on a random half of Sample 1 to ascertain whether a sole, dimensional factor structure underlies both instruments. This was followed by a CFA of the second half of Sample 1 with the same six subscales with the purpose of identifying whether the model obtain through the EFA was replicable.

Exploratory Factor Analysis. An item-level EFA of the six subscales (3 APS-R subscales, 3 HFMPS subscales) was conducted on a randomly selected half of Sample 1 (n = 425) to ascertain whether a similar, dimensional factor structure underlies both instruments. One item, "I set very high standards for myself", was identically written in the SOP subscale of the HFMPS and the HS subscale of the APS-R. Therefore, one version of these two items, item 40 of the HFMPS scale, was removed prior to analysis.

Examination of the scree plot suggested an 8-factor solution. Next, a parallel analysis (O'Connor, 2000) was conducted, and component eigenvalues were compared to the 95th percentile for factors derived from random data using 200 samples. The parallel analysis indicated a 9-factor solution, the sum of these factors accounting for 55.92% of item variance. Eigenvalues for the first two factors extracted were 11.06 and 10.16, and explained 16.27% and 14.94% of the item variance, respectively.

For the purpose of the following discussion, items were assigned to the factor on which they each loaded most highly. Items were considered representative of an extracted factor only if they loaded highly on that particular factor and also if they did not load highly or have similar loading values on any other factor. Cross-loadings of items were considered similar if the difference in loading value for an item on two factors was .20 or lower. Factor loadings for the 9-factor solution are presented in Table 11.

Table 11. Factor loadings for exploratory factor analysis of perfectionism subscales.

	1	2	3	4	5	6	7	8	9
Almost Perfect Scale Revised - Discrepancy									
1. I often feel frustrated because I can't meet my goals.	**.693**	-.004	-.151	-.015	.077	.089	-.139	.015	-.179
2. My best just never seems to be good enough for me.	**.795**	.061	.054	-.022	.002	-.001	.020	-.016	-.048
3. I rarely live up to my high standards.	**.834**	.002	-.083	-.027	.022	-.022	.007	.031	-.083
4. Doing my best never seems to be enough.	**.788**	-.002	.061	.091	-.029	-.034	-.027	-.020	-.001
5. I am never satisfied with my accomplishments	**.694**	.014	.070	-.117	-.053	-.044	.104	.164	.045
6. I often worry about not measuring up to my own expectations	**.681**	.118	-.030	.025	.082	.094	-.067	.002	.003
7. My performance rarely measures up to my standards.	**.835**	.034	-.051	-.051	.006	.024	.009	.074	-.013
8. I am not satisfied even when I know I have done my best.	**.677**	.157	.063	-.121	-.034	.002	.125	.013	.078
9. I am seldom able to meet my own high standards for performance.	**.827**	.004	.007	-.037	.003	.031	.066	.031	.014
10. I am hardly ever satisfied with my performance.	**.824**	-.057	.097	.046	-.067	-.014	.046	-.051	.098

11. I hardly ever feel that what I've done is good enough.	**.849**	-.071	.047	.057	-.018	.016	.000	-.095	.090
12. I often feel disappointed after completing a task because I know I could have done better.	**.743**	-.057	-.044	.062	.008	.026	-.076	.005	-.041
Almost Perfect Scale Revised - High Standards									
13. I have high standards for my performance at work or at school.	.047	.080	**.745**	-.084	-.016	-.112	-.023	-.149	.114
14. If you don't expect much out of yourself you will never succeed.	.115	-.170	**.596**	.088	.051	.097	-.056	.019	.021
15. I have high expectations for myself.	.006	-.128	**.938**	.061	-.031	-.001	.002	.014	-.032
16. I set very high standards for myself.	-.043	.064	**.873**	.010	-.054	-.043	.049	.069	-.063
17. I expect the best from myself.	-.034	-.066	**.831**	-.004	.054	.048	.006	.096	-.027
18. I try to do my best at everything I do.	-.105	.085	**.556**	-.045	.228	-.006	.013	.052	-.031
19. I have a strong need to strive for excellence.	.004	.180	**.596**	-.043	.186	.028	.014	.044	-.005
Almost Perfect Scale Revised - Order									
20. I am an orderly person.	-.006	-.023	.129	0.015	**.751**	-.084	-.025	-.071	.018

21. Neatness is important to me.	-.010	-.001	.025	-0.003	**.886**	.061	.019	-.026	.003
22. I think things should be put away in their place.	.015	-.038	.016	-0.008	**.849**	.035	-.011	.026	-.011
23. I like to always be organized and disciplined.	.005	.113	.036	0.039	**.823**	-.019	.057	-.059	-.035
HFMPS - Self Oriented Perfectionism									
1. When I am working on something, I cannot relax until it is perfect.	.101	**.602**	.005	-.080	.114	-.130	-.059	-.009	.007
6. One of my goals is to be perfect in everything I do.	.049	**.724**	-.048	-.100	-.013	-.090	.067	.271	.079
8. I never aim for perfection in my work.	.036	.233	-.048	-.114	.111	**.247**	-.119	-.151	-.104
12. I seldom feel the need to be perfect.	.028	**.550**	-.046	-.025	-.042	.329	.210	-.108	.038
14. I strive to be as perfect as I can be.	-.079	**.789**	.015	.008	-.025	-.051	-.097	-.016	-.070
15. It is very important that I am perfect in everything I attempt	-.026	**.847**	-.169	-.024	.026	-.144	.154	.184	.041
17. I strive to be the best at everything I do.	-.012	**.696**	.013	-.049	-.040	.039	-.196	.067	-.076
20. I demand nothing less than perfection of myself.	-.031	**.694**	.003	.028	.049	-.187	.152	.107	.076
23. It makes me uneasy to see an error in my work.	.111	**.557**	-.004	-.012	.047	-.112	.039	-.118	.107

28. I am perfectionist in setting my goals.	.012	**.668**	-.043	.075	.113	.044	-.009	-.006	.305
32. I must work to my full potential at all times.	.025	**.528**	.097	.171	-.062	.090	-.175	-.268	.055
34. I do not have to be the best at whatever I am doing.	-.017	**.550**	-.027	-.100	-.013	.051	.494	-.083	-.147
36. I do not have very high goals for myself.	-.011	**.397**	.186	-.246	-.083	.337	-.016	-.118	-.200
42. I must always be successful at school or work.	.022	**.627**	.137	.078	-.141	.012	-.167	-.165	-.013
HFMPS - Other Oriented Perfectionism									
2. I am not likely to criticize someone for giving up too easily.	-.017	.108	-.110	.097	.080	**.534**	-.109	-.197	-.180
3. It is not important that the people I am close to are successful.	.103	-.132	.043	-.090	-.066	**.514**	.025	.116	-.004
4. I seldom criticize my friends for accepting second best.	.090	-.230	.067	.043	-.006	**.471**	.167	.186	.016
7. Everything that others do must be of top notch quality.	.036	.205	-.016	.087	.000	-.022	-.017	**.587**	.155
10. It doesn't matter when someone close to me does not do their absolute best.	.059	-.047	.015	.084	.127	**.565**	.121	-.096	-.040

16. I have high expectations for the people who are important to me.	.080	.162	.058	.107	.026	.327	-.216	**.331**	-.100
19. I do not have very high standards for those around me.	.005	-.080	-.068	-.010	.017	**.616**	-.061	-.042	-.041
22. I can't be bothered with people who won't strive to better themselves.	.125	-.028	.038	.114	-.029	.013	-.201	**.378**	.073
24. I do not expect a lot from my friends.	-.139	-.001	.040	-.034	-.033	**.480**	.096	.032	-.080
26. If I ask someone to do something I expect it to be done flawlessly.	-.070	.254	.037	.147	-.026	.073	-.138	.249	**.538**
27. I cannot stand to see people close to me make mistakes.	-.037	.135	.005	.263	-.047	.087	-.183	.157	**.575**
29. The people who matter to me should never let me down.	-.026	.069	-.046	**.497**	.115	.179	-.108	.104	.233
38. I respect people who are average.	-.099	-.120	.062	-.070	-.077	.228	.345	**.452**	.026
43. It does not matter to me when a close friend does not try their hardest.	.059	-.047	.015	.084	.127	**.565**	.121	-.096	-.040
45. I seldom expect others to excel at whatever they do.	.001	.011	-.122	.028	.100	**.448**	-.060	-.109	-.110
HFMPS - Socially Prescribed Perfectionism									

5. I find it difficult to meet others' expectations of me.	.230	-.068	-.107	**.355**	.105	-.225	.122	.161	-.164
9. Those around me readily accept that I can make mistakes too.	.016	-.036	-.080	.198	.003	.233	**.481**	-.046	-.002
11. The better I do, the better I am expected to do.	.053	.170	.098	.273	-.098	.035	-.164	.009	**-.330**
13. Anything I do that is less than excellent will be seen as poor work by those around me.	.007	.186	.084	**.308**	-.063	-.189	.243	.149	-.094
18. The people around me expect me to succeed at everything I do.	-.056	.275	-.014	**.468**	-.065	.054	-.059	.186	-.185
21. Others will like me even if I don't excel at everything.	.084	.021	-.031	.118	.017	.081	**.706**	-.055	.000
25. Success means that I must work even harder to please others.	.030	.256	.054	**.345**	-.049	-.082	.125	-.122	.029
30. Others think I am okay, even when I do not succeed.	.053	.009	.035	.035	-.007	-.024	**.745**	.074	-.233
31. I feel that people are too demanding of me.	.037	-.160	.022	**.764**	-.080	-.033	.079	-.142	.001
33. Although they may not show it, other people get very upset with me when I slip up.	-.008	-.001	.022	**.631**	-.062	-.030	.221	-.084	.046
35. My family expects me to be perfect.	-.079	-.125	-.044	**.682**	.113	-.012	-.008	.108	.047

37. My parents rarely expected me to excel in all aspects of my life.	-.117	-.024	.041	.049	.008	.310	.060	.102	**-.344**
39. People expect nothing less than perfection from me.	-.081	.140	-.016	**.625**	.049	.059	.257	.025	.032
41. People expect more from me than I am capable of giving.	.099	.017	.097	**.499**	-.036	-.141	.066	.028	.018
44. People around me think that I am still competent even if I make a mistake.	-.044	-.020	.011	.194	.048	.089	**.712**	-.051	.027

Note. Item numbers represent ordering of each item in published scales. Items in bold represent highest loading value for each item. *n* = 425.

Twelve items loaded on factor 1, with factor loadings ranging from .849 to .677. Collectively, these items represented the full 12-item Discrepancy subscale of the APS-R, and therefore produced the same internal consistency value as the original scale. These items represent a tendency to find discrepancy between one's performance and one's expectations of self, with performance consistently falling below personal expectations.

Factor 2 included 13 items with factor loadings ranging from .847 to .397. These items represented all but two of the 15 items of the HFMPS SOP subscale and are designed to measure self-directed perfectionism. As mentioned previously, one of these latter two items was removed prior to analysis because it is identical to an item on the APS-R. The final item of the SOP, "I never aim for perfection in my work", cross-loaded on factor 6, and loaded slightly higher on factor 6 (.247) than on factor 2 (.233). Despite loading slightly higher on factor 6, this item appeared to have similar manifest content to the other items that loaded on factor 2, this latter point makes sense because this item was designed to be part of the same subscale as all other items that loaded on factor 2. Two other items from the SOP scale loaded poorly on factor 2 (.397 and .550) and cross-loaded substantially on other factors. These two items were subsequently removed prior to further analysis. The remaining factor 2 items indicated relatively strong internal consistency (.89).

The items that loaded on factor 3 were exclusively the 7 items of the APS-R HS subscale, and therefore produced the same internal consistency value as the original scale. Factor loadings ranged from .938 to .556. The HS subscale of the APS-R was designed to measure high personal standards of performance.

Factor 4 included nine items with factor loadings ranging from .764 to .308. These items represented nine of the 15-item HFMPS SPP subscale and were constructed to measure an individual's perception that others expect him/her to be perfect. The first five items on factor 4 appear to load strongly (scores ranging from .764 - .499) and distinctly (no cross loadings). The final four items loaded less strongly on factor 4 (.497 - .308), and did not appear to have strong membership to this factor because each of these second five items cross-loaded on one or two other factors with a .20 or less loading difference. These last four items were subsequently removed prior to further analysis. Examination of item loading on factor 7 revealed that each of the four items loading on this factor are also from the HFMPS SPP subscale, with loading ranging from .745 to .481. The difference between SPP items that loaded on factor 4 and those that loaded on factor 7 is that the latter group of items were all SPP subscale reverse-coded items, and subsequently written to reflect an individual's perception that others do not expect him/her to be perfect (e.g., "Others will like me even if I don't excel at everything."). An initial item analysis of all the items loading on factor 7 (four items) and the strong factor loadings on factor 4 (five items) indicated that a scale composed of all of these items would have strong internal consistency (Cronbach's $\alpha = .81$). This reliability score is identical to that of the 15-item SPP subscale (.81).

Four items loaded on factor 5, with factor loadings ranging from .886 to .751. Each of these items belong to the 4-item Order subscale of the APS-R, and produced an identical internal consistency value of the original subscale. These items represent a preference for personal organization and neatness.

Examination of items loading on factors 6 and 8 revealed that eleven of the fourteen items loading on these two factors are from the HFMPS OOP subscale, with loading ranging from .616 to .331. The HFMPS OOP subscale was designed to measure an individual's perfectionistic expectations of others. All eight of the items that loaded on factor 6 were reverse-scored items from the HFMPS OOP subscale, such that they were constructed to express a lack of perfectionistic expectations for others (e.g., "I do not expect a lot from my friends."). The four items that loaded on factor 8 were typically scored items from the HFMPS OOP subscale. Despite this, only one of the four items that loaded on factor 8 did so cleanly. The final three items of the OOP that did not load substantially on factors 6 or 8, loaded substantially on other factors. An initial item analysis of all the SOP items that loaded cleanly on factors 6 and 8 revealed that a scale composed of all of these items would have moderate internal consistency (Cronbach's α = .616). This reliability score is slightly lower than that of the 15-item OOP subscale (.660).

Of the four items that loaded more strongly on factor 9 than on any other factor, two items were from the HFMPS SPP subscale, which loaded negatively on this factor (-.330 and -.334), and cross-loaded substantially on other factors. The other two items of factor 9 were from the HFMPS OOP subscale and loaded positively on this factor (.575 and .538). The collective manifest content of these items represented what has been theorized to be two different dimensions of perfectionism, a socially prescribed dimension, and an other-oriented dimension. An initial reliability analysis of the four items loading on factor 9 produced a Cronbach's alpha score of .38. This reliability score

is lower than that of any of the perfectionism subscales in this study. Due to low loadings of items on factor 9, along with the moderately low scale reliability of these items and the fact that they do not appear to represent similar manifest content, it was tentatively concluded that this ninth extracted factor did not meaningfully contribute to the factor structure of perfectionism.

Means, standard deviations, and intercorrelations between the nine factors of the EFA are presented in Table 12. Providing some evidence for the commonality between factors 4 and 7, the items of these factors produced the highest correlation (r = .62) amongst all factor comparisons. Unexpectedly, no correlation was found between factors 6 and 8 (r = -.05), which is surprising considering the one item that cleanly loaded on factor 8 was from the same scale, the HFMPS OOP subscale, as factor 6.

Table 12. Means, standard deviations, Cronbach's alphas, and intercorrelations of nine perfectionism factors.

	M	SD	1	2	3	4	5	6	7	8	9
1. Factor 1	38.03	15.74	(.95)								
2. Factor 2	52.6	11.63	.266**	(.89)							
3. Factor 3	40.56	6.94	-.064	.385**	(.93)						
4. Factor 4	21.35	6.26	.354**	.357**	-.059	(.82)					
5. Factor 5	21.46	4.92	-.105*	.288**	.517**	.016	(.92)				
6. Factor 6	33.49	5.06	-.027	.145**	.231**	-.049	.110*	(.48)			
7. Factor 7	12.62	3.68	.433**	.150**	-.229**	.619**	-.120*	-.111*	(.77)		
8. Factor 8	3.42	1.43	.216**	.395**	.019	.483**	.044	-.050	.327**	-	
9. Factor 9	8.47	2.16	-.034	.323**	.215**	.207**	.136**	.246**	.028	.263**	(-.38)

Note. Factor Cronbach's alpha values are presented on the diagonal. No value is reported for Factor 8 on account that this factor consisted of one item.

** $p < .05$. * $p < .01$.

Confirmatory Factor Analysis. Confirmatory Factor Analyses were run using the second half of Sample 1 (n = 424). Because of the interpretation that factor 9 extracted from the EFA was not a meaningful factor, along with the indication that EFA factors 4 and 7 appeared to represent the same factor, and EFA factors 6 and 8 appeared to represent the same factor, a model reducing the number of factors from 9 to 6 was tested for fit in the CFA stage, as was a model reducing the number of factors from 9 to 8.

For the 6 factor model, items were constrained to load only on the 6 factors identified in the EFA via statistical analyses and interpretability of the factor solution. Therefore, the 12 items that loaded on factor 1 were restricted to load on the first factor, the 13 items that loaded on factor 2 were restricted to load on the second factor, the 7 items that loaded on factor 3 were restricted to load on the third factor, and the 4 items that loaded on factor 5 were restricted to load on the fourth factor of the CFA. Factors 4 and 7 from the EFA (items from the HFMPS OOP subscale) were combined to form factor 5 in the CFA, restricting the combined 9 items from these factors to load on the fifth factor. Similarly, factors 6 and 8 from the EFA (items from the HFMPS SPP subscale) were combined to form factor 6 in the CFA, and the 8 items from these factors were restricted to load on the sixth CFA factor.

Absolute fit indices of SRMR and Chi-Square significance, as well as relative fit indices of CFI, TLI, and RMSEA were used as indices of model fit. The chi-square statistic comparing the predicted model to the null, or base, model was significant, (χ^2 (1637, N = 424) = 7409.45, $p < .001$), indicating that the predicted model fit the data less accurately than the null model. However, other fit indices may be a better indication of

the model fit in this study, as it has been argued that it is difficult to obtain good model fit using the chi-square test when sample size is over 400 (Kenny, 2012). The model SRMR in this study was .09, this is just above the recommended cutoff of .08 to interpret the model as a good fit (Hu & Bentler, 1999).

The CFI and TLI values compare the predicted model fit to that of the null model. Typically, a value of .90 or higher for the CFI, and .95 or higher for the TLI, indicate that the predicted model is a good fit. For this model, CFI = .79, and TLI = .78, indicating a poor fit. A value under .05 for the RMSEA indicates a good fit of the predicted model to the data, and a value at or above .10 is typically considered a poor fit. The RMSEA of the model was .06, indicating a fit near significance.

This 6-factor model is not optimal, as none of the fit indices supported strong model fit, and only two fit indices, the SRMR and the RMSEA, were even close to the ideal range of values for good model fit. However, to some extent these results were to be expected. Floyd and Widaman (1995), among others, have noted that factor model fit at the item level is usually weaker than at the subscale or full scale level. One reason for this reduced model fit is item distribution similarity. Item level factor analysis will factor together items that are commonly endorsed or easier to read, even if they represent the same latent variable as less commonly endorsed items or items that are more difficult to read (Nunnaly & Bernstein, 1994). It is also generally acknowledged that scales are much more reliable than individual items because of more shared measurement variance at the item level. However, item-level factor analysis does have merit despite these considerations. Wirth and Edwards (2007) posit that research questions regarding scale

structure may be appropriately addressed with SEM-based item-level factor analysis. For example, factor analysis at the item level may inform the need for further refinement of current of a measure, including removal or editing of items that do not clearly measure unidimensional factors (Olatunji et al., 2007). Such instrument modification may allow for stronger, and possibly clearer, inferences to be made regarding the nature of perfectionism, as structural analytic findings in this body of literature are equivocal. Stairs et al (2012) recently used item-level analysis for just this purpose. Therefore, I elected to meaningfully report the results of this 6-factor solution. Loadings of the items on each of the six factors are presented in Table 13, along with scale reliability estimates.

Table 13. Confirmatory factor analysis loadings of APS-R and HFMPS items on six perfectionism factors.

	Factor loading
Factor 1: Discrepancy	(.95)
APS1	.58
APS2	.79
APS3	.80
APS4	.81
APS5	.80
APS6	.68
APS7	.85
APS8	.76
APS9	.83
APS10	.86
APS11	.85
APS12	.73
Factor 2: Excessive Standards	(.88)
HFMPS1	.53
HFMPS6	.74
HFMPS12	.48
HFMPS14	.69
HFMPS15	.75
HFMPS17	.62
HFMPS20	.73
HFMPS23	.48

HFMPS28	.75
HFMPS32	.54
HFMPS34	.45
HFMPS36	.31
HFMPS42	.57
Factor 3: High Standards	(.92)
APS13	.71
APS14	.62
APS15	.88
APS16	.88
APS17	.86
APS18	.76
APS19	.83
Factor 4: Order	(.93)
APS20	.79
APS21	.92
APS22	.90
APS23	.87
Factor 5: Perfectionism Toward Others	(.62)
HFMPS2	.19
HFMPS3	.05
HFMPS4	.18
HFMPS7	.63
HFMPS8	.03
HFMPS10	.28
HFMPS19	.10
HFMPS22	.38
HFMPS24	.09
HFMPS26	.75
HFMPS27	.67
HFMPS29	.57
HFMPS43	.20
HFMPS45	.11
Factor 6: Pressure from Others	(.81)
HFMPS9	.45
HFMPS21	.47
HFMPS30	.46
HFMPS31	.60
HFMPS33	.65
HFMPS35	.46
HFMPS39	.60
HFMPS41	.65

Note. Internal reliability scores for each factor are presented above the factor loading scores for each factor. *n* = 424.

As with the EFA, factors 1, 3, and 4 of the CFA each contain only items from the Discrepancy, High Standards, and Order subscales of the APS-R, respectively, and produced strong reliability estimates ranging from .92 - .95. Each of these factors also resulted in generally strong factor loadings, factor 1 item loadings ranged from .58 to .86, factor 3 item loadings ranged from .62 to .88, and factor 4 item loadings ranged from .79 - .92.

Factor 2 represents all but one of the items from the HFMPS SOP subscale. Factor 2 produced a slightly lower reliability estimate than the previous three factors (α = .88), and had less than ideal factor loadings, ranging from .31 - .75. Although previous researchers have argued that the SOP subscale of the HFMPS measures the same latent factor, high personal standards, as the High Standards subscale of the APS-R, the present results do not replicate this finding. Examination of the possible difference between the items of factors 2 and 3 reveal that each of the factor 2 items (from the HFMPS SOP subscale) include the words "perfection" and "perfect". This factor was named "excessive standards" in this study in an attempt to capture the excessively high standards communicated via these items. In contrast, none of the nine factor 3 items (from the APS-R HS subscale) use any variation of the root word "perfect" and instead contain statements about high standards for personal effort (e.g., "try my best") and achievement ("do my best"). These differences in language between the two subscales, combined with the resulting factor pattern in this study that demonstrated these subscales to load on

different factors, may indicate that these subscales that constitute these factors, are in fact, representative of separate latent factors that discriminate between "high standards" and "excessive standards".

Factor 5 included all but one of the original fifteen items from the HFMPS OOP subscale. One item was removed prior to the CFA because EFA results indicated that it cross-loaded considerably on another factor. The Cronbach's alpha score of this subset of OOP subscale items was slightly lower ($\alpha = .61$) than that of the original scale ($\alpha = .66$). Neither of these versions of the OOP subscale produced strong internal consistency scores. These results, taken into consideration with the large range of item loadings (.05 - .75) on this factor, provide some evidence of the poor utility of this collection of items as an instrument.

Factor 6 represented nine of the original 15 items from the HFMPS SPP subscale, and produced the same Cronbach's alpha (.81) as was produced by the full version of the subscale. Item loadings on this factor were moderate, ranging from .45 - .65, indicating that items are not particularly strong indicators of the latent variable they are used to measure.

It also appears that factors 2, 5, and 6, each composed of items from the HFMPS, are not equally represented by all items contained within each factor in this model. A considerable range of item loadings were found for each of these factors, indicating that these three factors included items that were strong representatives of each factor, as well as items that were very poor representatives of each factor. Factor 5 was particularly

troublesome, as only four of fourteen item loadings exceeded .50, and half of the item loadings fell below .20. Factors 2 and 6 each had four items which loaded below .50.

Table 14 reports the correlations between factors, describing a diverse pattern of relationships, and also indicating that the factors generally do not share a substantial amount of variance.

Table 14. Means, standard deviations, Cronbach's alphas, and intercorrelations of six perfectionism factors.

	M	SD	1	2	3	4	5	6
1. Factor 1	38.91	15.56	(.92)					
2. Factor 2	59.62	12.23	.19**	(.95)				
3. Factor 3	39.32	7.22	-.11**	.44**	(.93)			
4. Factor 4	20.98	4.94	-.14**	.28**	.50**	(.88)		
5. Factor 5	58.88	9.27	.02	.48**	.24**	.13**	(.62)	
6. Factor 6	29.25	8.12	.41**	.23**	-.12**	-.05	.15**	(.81)

Note. Subscale Cronbach's alpha values are presented on the diagonal.
** $p < .01$.

The correlation matrix, the moderate fit of the CFA model, and the item loadings on many of the factors of the model appear to indicate that the content represented by the items in this model may represent not one, but several traits, and may not represent at least some of those traits well.

Next the 8 factor model was tested, retaining the first eight factors extracted from the EFA conducted for the purpose of this study. The ninth factor of the EFA was not included in this model for the same reason it was excluded from the 6 factor model, considerable cross-loading of items and the likelihood that the factor does not represent a theoretically meaningful factor. The 8 factor model produced fit indices slightly better than those of the 6 factor model, (CFI = .83, TLI = .82, SRMR = .08, RMSEA = .06, $\chi^2(1513, N = 424) = 5976.87, p < .001$). These results indicate that the 8-factor model of

the 3 subscales of the APS-R and the 3 subscales of the HFMPS may best represent the latent structure of the traits of perfectionism measured by these instruments. At the same time, the significance of this 8-factor model does not make theoretical sense, as two of the eight factors extracted were composed of reverse-scored items of the HFMPS OOP and the HFMPS SPP scales. Examination of item content of conventionally structured and reverse-coded items of these subscales revealed meaningfully similar items. For example, an HFMPS OOP item that loaded on factor 8 ("I have high expectations for the people who are important to me.") appears to measure the same latent factor as a reverse-scored HFMPS OOP item that loaded on factor 6 ("I do not have very high standards for those around me."). Similarly, an HFMPS SPP item that loaded on factor 4 ("The people around me expect me to succeed at everything I do.") appears to be quite similar to a reverse-scored HFMPS SPP item that loaded on factor 7 ("Others think I am okay, even when I do not succeed.").

While there is statistical evidence that the eight-factor model is a better representation than the six-factor model of the latent factors represented by the collection of perfectionism items used in this study, there does not seem to be meaningful, theoretically-driven evidence that would support the same conclusion. For these reasons, I chose to retain the six factor model for one final model comparison.

The final model tested using CFA was a five-factor model that retained all factors from the six-factor model but the fifth factor, which represented the HFMPS OOP subscale. This factor was removed due to EFA and CFA results indicating poor factor loadings of the items representing the HFMPS OOP subscale, and the low internal

consistency of these items. Fit indices for this third model indicated slightly decreased fit (CFI = .79, TLI = .77, SRMR = .11, RMSEA = .08, $\chi^2(935, N = 424) = 5971.51$, $p <$ .001), as compared to the 6 factor and 8 factor models. Despite worse fit of this third model with factor 5 (representing items from the HFMPS OOP subscale) removed, the OOP subscale was removed from further analysis due to its poor internal reliability and item loading scores.

Relation of Perfectionism to Career Indecision

A replication of Brown et al.'s (2011) factor analysis was conducted with Sample 2 (n = 270), using Principal Factor Analysis with promax rotation, on the recently developed CIP-65 in order to verify their four factor structure of career indecision. Then, regression analyses examined the predictive nature of perfectionism in relation to the four factors of career indecision, also providing information regarding whether categorical or dimensional measurement of perfectionism best predict career indecision.

Principal Factor Analysis of CIP-65. Descriptive statistics and score reliability estimates for each of the four subscales of the CIP-65 were produced for the purpose of examining the internal consistency of each instrument. Table 15 demonstrates means, standard deviations, reliability estimates, and correlations of each measure for the overall sample, which were found to be comparable to those obtained in previous, validation studies of the instrument (Brown et al. 2011; Hacker et al., 2013).

Table 15. Means, standard deviations, Cronbach's alphas, and intercorrelations of CIP-65 subscales.

	M	SD	1	2	3	4
1. Neuroticism	66.10	19.16	(.93)			
2. Choice Anxiety	78.66	25.77	.512**	(.96)		
3. Lack of Readiness	33.21	10.57	.369**	.265**	(.88)	
4. Interpersonal Conflicts	11.25	6.03	.403**	.409**	.261**	(.88)

Note. Subscale Cronbach's alpha values are presented on the diagonal.

** $p < .01$.

Next, a replication of Brown et al.'s (2011) factor analysis was conducted on the recently developed CIP-65 in order to verify their four factor structure of career indecision. This, examination occurred at the item level. Both examination of the scree plot and parallel analysis indicated the best model to include four factors. Therefore, I elected to extract four factors via principal axis factor analysis, with oblique rotation using promax. Table 16 indicates that all items loaded substantially on the respective hypothesized factors with two exceptions. As hypothesized, item 17 loaded on factor 2 (.394), but also cross-loaded on factor 4 (.205) with less than .20 difference between the loadings. The second item that did not adhere to the model determined by Brown et al. was item 15, which was hypothesized to load on factor 1, the Choice/Commitment Anxiety factor. While this item did load on this factor (.394), it loaded slightly stronger (.431) on factor 2, the Neuroticism/Negative Affectivity factor. With the exception of the two items just discussed, each of the four factors of the CIP-65 appeared to be cleanly and strongly represented by the items assigned to each factor by Brown et al (see Table 16). Results appear to lend support for the four-factor structure of the CIP-65.

Table 16. Factor loadings for four factors of CIP-65.

	1	2	3	4
1. When I experience a setback, it takes me a long time to feel good again	-.110	**.726**	-.011	-.034
2. I often feel like crying	-.017	**.630**	.013	-.035
3. I'd be going against the wishes of someone important to me if I follow the career path that most interests me	-.045	.044	-.164	**.771**
4. I am uncomfortable committing myself to a specific career direction	**.545**	-.011	.092	.128
5. I strive hard to achieve my goals	-.025	.079	**.489**	-.104
6. I often feel tired and worn out	-.068	**.673**	-.060	-.025
7. I frequently feel overwhelmed	.044	**.676**	-.123	-.035
8. I am easily embarrassed	.023	**.545**	-.005	.072
9. I think I take failures and setbacks harder than a lot of people I know	-.027	**.639**	-.131	.092
10. I really have a hard time making decisions without help	.085	**.515**	.131	-.011
11. I need to learn more about what I want from a career	**.686**	-.040	.069	-.029
12. My interests change so much that I cannot focus on one specific career goal	**.662**	.037	.082	.032
13. I often feel discouraged about having to make a career decision	**.549**	.218	.043	.080
14. I plan ahead when I have to make an important decision	.083	-.143	**.502**	-.108
15. I sometimes feel directionless	.394	**.431**	.071	-.015
16. I always think carefully about decisions I have to make	.012	-.089	**.529**	-.054
17. I worry about what other people think of me	.093	**.395**	-.050	.205
18. I'm having a hard time trying to decide between a couple of good career options	**.660**	-.076	-.148	.125
19. I thoroughly consider the consequences of a decision before I make it	-.097	.000	**.515**	-.058

20. I need a clearer idea about my abilities and talents before I can make a good career decision	**.650**	.045	.016	-.009
21. I'm conflicted because I find a number of different careers appealing	**.717**	-.102	-.158	.037
22. I need to learn more about myself before I can make a good career decision	**.698**	.019	.099	.024
23. When bad things happen in my life, I just keep going because I k now things will get better soon	-.126	.167	**.535**	-.018
24. It's difficult for me to choose a career because I like so many different things	**.808**	-.164	-.074	.046
25. If something goes wrong, I have a hard time forgetting about it and concentrating on present tasks	.041	**.685**	.004	-.052
26. I often hope that my problems would just go away	.067	**.557**	-.105	-.174
27. I usually am able to carry out the plans I make	.016	.063	**.479**	.044
28. I like to keep myself open to various career opportunities rather than committing to a particular career	**.630**	-.112	-.228	.053
29. People who are important to me give me contradictory information about the career I should pursue	.247	-.074	-.058	**.544**
30. I think I am a worthwhile person	-.059	.103	**.400**	.086
31. I feel very confident that I will be able to achieve my career goals	.062	.094	**.588**	-.019
32. I feel stuck because I don't know enough about occupations to make a good career decision	**.790**	-.017	.111	-.070
33. Important people in my life do not support my career plans	.028	-.098	.079	**.782**
34. I often get so sad that it's hard to go on	-.073	**.557**	.235	.098
35. I am familiar with my career options, but I'm just not ready to commit to a specific occupation	**.614**	-.046	.026	.019

36. Given enough time and effort, I believe I can solve most problems that confront me	-.107	-.066	**.646**	.009
37. I am a worrier	-.167	**.715**	-.084	-.084
38. When making important decisions, I tend to focus on what will go wrong	.015	**.653**	-.032	-.065
39. I often feel fearful and anxious	-.102	**.809**	.018	-.001
40. After I have made a decision about an important issue, I continue to think about the alternatives I didn't choose	.062	**.571**	-.019	-.072
41. I have found myself sleeping a lot less or a lot more recently	.036	**.557**	-.164	-.087
42. I need to learn more about the interests I have before I can make a good career decision	**.797**	.019	-.101	-.064
43. Important people in my life disagree about the career I should pursue	.000	-.031	-.085	**.937**
44. I often feel insecure	-.040	**.677**	.093	.029
45. Stressful situations frequently make me ill	-.097	**.581**	.105	.076
46. I often feel ashamed of myself	.014	**.589**	.195	.095
47. I'm concerned that my interests may change after I decide on a career	**.582**	.171	-.042	.018
48. I am quite confident that I will be able to overcome obstacles to getting the career I want	.023	.042	**.700**	-.033
49. I am not sure I can commit to a specific career because I don't know what other opinions might be available	**.757**	-.021	-.021	.050
50. I'm concerned that my goals may change after I decide on a career	**.571**	.094	.104	.013
51. I try to excel at everything I do	-.098	.006	**.664**	.013
52. I need more information about occupations in which I might be successful	**.847**	-.041	-.080	-.167

53. Important people in my life have discouraged me from pursuing the career I want	-.070	-.046	.022	**.921**
54. I will be able to find a career that fits my interests	.068	-.088	**.780**	.040
55. I always work productively to get the job done	.081	-.130	**.783**	-.011
56. I don't have enough occupational information to make a good career decision	**.728**	-.008	.133	-.026
57. I need a lot of encouragement and support from others when I make a decision	.249	**.490**	-.184	.046
58. I need to learn how to go about making a good career decision	**.722**	.088	.024	-.070
59. I am quite confident that I will be able to find a career in which I'll perform well	.060	-.014	**.727**	-.045
60. I usually don't have a lot of confidence in my decisions unless my friends give me support for them	.088	**.447**	.131	.200
61. I need more information about careers I might like	**.870**	.011	-.088	-.146
62. I often feel nervous when thinking about having to pick a career	**.633**	.156	-.072	.002
63. I'm having a hard time narrowing down my career interests	**.837**	-.151	.075	.019
64. I verify my information to ensure I have all the facts before making a decision	-.110	-.292	**.569**	.021
65. I don't know much about the occupations I'm considering	**.544**	.082	.173	.096

Note. Item numbers represent ordering of each item in published scales. Items in bold represent highest loading value for each item. n = 270.

Regression Analyses Predicting Career Indecision from Perfectionism. The final stage of this study included four sets of hierarchical regression analyses, examining the extent to which each of the four factors of career indecision, as measured by the CIP-

65, could be predicted by the measures of perfectionism used in this study. The predictor variables in these analyses therefore included the three subscales of the APS-R (Discrepancy, High Standards, Order), and reduced versions of the SOP (one item subtracted) and SPP (seven items subtracted) subscales of the HFMPS. As mentioned previously, items from the two subscales of the HFMPS were removed after EFA analysis due to substantial cross loadings. The OOP subscale of the HFMPS was also removed prior to regression analyses due to low internal consistency scores and poor factor loadings. The remaining five subscales of these two perfectionism instruments were used to create classes of perfectionism (as informed by the LCA) and dimensions of perfectionism (as informed by the CFA) in the regression analyses. This was done to ascertain which manner of measuring perfectionism, categorically or dimensionally, best predicted career-related indecision.

The six classes extracted from the LCA that examined the APS-R and HFMPS together were included in the regression analyses. This LCA replicated the findings of Rice et al (2007), and indicated the existence of three classes within the APS-R that have commonly been referred to in the literature as adaptive perfectionists, maladaptive perfectionists, and non-perfectionists (e.g., Grzegorek et al., 2004). Each of these categorical variables was dummy coded for regression analyses. For each variable, the category specifier was coded as 1 while the two additional classes of the APS-R were coded as zero; the same process was repeated for the classes extracted from the HFMPS. LCA results also indicated the existence of three classes within the HFMPS, which

appeared to follow a pattern of high, moderate, and low scores across the three HFMPS subscales in the analysis.

Five dimensional measures of perfectionism were included in the regression analyses, which represent five of the six factors extracted from the CFA in this study. Three factors were represented by the APS-R. Factor 1 represented the Discrepancy subscale of the APS-R, factor 3 represented the High Standards subscale, and factor 4 represented the Order subscale of the same measure. The final two factors used in the regression were items from the SOP (factor 2, excessive standards) and SPP (factor 6, pressure from others) subscales of the HFMPS. The fifth factor extracted from the 6-factor CFA model, represented by items from the OOP subscale, was removed prior to regression analyses due to concern about the stability of the factor. The choice to remove the OOP subscale from further analysis is additionally supported by the fact that the collection of items within this subscale relate exclusively to an individual's standards for others' behavior, which should not be expected to relate directly to one's own career decision-making, nor the factors of the CIP-45.

The correlations among the regression variables are presented in Table 17.

Table 17. Means, standard deviations, and intercorrelations of scores on CIP-65, perfectionism factors, and perfectionism classes

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. CIP Neuroticism/Negative Affectivity	-												
2. CIP Choice/Commitment Anxiety	.512**	-											
3. CIP Lack of Readiness/Immaturity	.369**	.265**	-										
4. CIP Interpersonal Conflict	.403**	.409**	.261**	-									
5. Discrepancy Factor	.611**	.466**	.261**	.329**	-								
6. High Standards Factor	-.263**	-.197**	-.689**	-.170**	-.197**	-							
7. Order Factor	-.138*	-.159**	-.464**	-.098	-.094	.569**	-						
8. Excessive Standards Factor	-.176**	-.130*	-.529**	-.054	-.004	.618**	.507**	-					
9. Pressure from Others Factor	.346**	.251**	.294**	.333**	.499**	-.150*	-.055	.090	-				
10. HFMPS Hi/Med/Lo Classes	-.104	-.063	-.426**	.016	.043	.515**	.421**	.847**	.217**	-			
11. APS-R Adaptive Perfectionist Class	-.307**	-.231**	-.601**	-.206**	-.244**	.811**	.619**	.516**	-.180**	.421**	-		
12. APS-R Maladaptive Perfectionist Class	.245**	.161**	.256**	.143*	.195**	-.295**	-.340**	-.240**	.126*	-.182**	-.733**	-	
13. APS-R Non-Perfectionist Class	.114	.116	.515**	.104	.090	-.761**	-.431**	-.417**	.090	-.358**	-.456**	-.271**	-
Mean	66.10	78.66	33.21	11.25	42.51	40.69	21.79	62.33	30.56	1.91	.55	.30	.14
SD	19.16	25.77	10.57	6.03	17.77	7.63	5.15	12.27	7.92	.69	.50	.46	.35

*$p < .05$. **$p < .01$.

Moderate significant correlations were found between the CIP Neuroticism/Negative Affectivity factor and the Discrepancy and Pressure from Others factors, such that higher Neuroticism scores were related to higher Discrepancy and Pressure from Others scores. A moderate, positive correlation between the CIP Choice/Commitment Anxiety factor and the Discrepancy factor was also significant. The CIP Lack of Readiness/Immaturity factor produced moderate significant correlations with the High Standards, Order, and Excessive Standards factors, such that higher scores on these latter three scales were related to lower Lack of Readiness/Immaturity scores. Finally, higher scores on the CIP Interpersonal Conflict factor were moderately and significantly related to higher scores on the Discrepancy and Pressure from Others factors.

Four separate sets of hierarchical regression analyses were conducted to determine the pattern of variables that are associated with specific domains of career indecision. The model order for each of the regression methods was determined based upon two considerations. First, the 6 extracted classes of perfectionism and 5 extracted factors of perfectionism were inserted as two unordered sets of predictors to determine, generally, which set did a better job of accounting for career indecision. Then, within each set of variables, order was based upon aforementioned theoretical considerations. The CIP-65 was the sole criterion variable in each regression analysis, but different subscales were used in each model. The first regression model, measuring predictors of Choice/Commitment Anxiety, used the Choice/Commitment Anxiety subscale score of the CIP-65 as the criterion variable and the six classes and five factors of perfectionism as two unordered sets of predictors. The second, third, and fourth regression models

examined the CIP-65 Neuroticism/Negative Affectivity, Lack of Readiness/Immaturity, and Interpersonal Conflicts and Barriers subscales, respectively, against the same independent variables of model 1.

Choice/Commitment Anxiety. The results for the first run of the Choice/Commitment Anxiety factor of the CIP-65 are shown in Table 18. The analysis for the first run evaluates how well Choice/Commitment Anxiety is predicted by the perfectionism factors (Set 1) and how well Choice/Commitment Anxiety is predicted by the perfectionism classes (Set 2) over and above perfectionism factors. The relationship between Choice/Commitment Anxiety and perfectionism factors was significant, R^2 = .24, adjusted R^2 = .22, $F(5, 264) = 16.54$, $p < .01$. Higher Discrepancy factor scores predicted higher Choice/Commitment Anxiety scores. The perfectionism classes did not predict significantly over and above the perfectionism factors, R^2 change = .006, $F(4, 260) = .52$, $p = .72$.

Table 18. Summary of hierarchical regression for Choice/Commitment Anxiety, factors entered first.

Variable	β	R^2	ΔR^2	Δdf	ΔF
Set 1		.239	.000	5, 264	16.538**
Factors					
Discrepancy	.441**				
High Standards	-.013				
Order	-.062				
Excessive Standards	-.092				
Pressure from Others	.034				
Set 2		.245	.006	4, 260	9.349**
Factors					
Discrepancy	.438**				
High Standards	.086				
Order	-.039				
Excessive Standards	-.171				
Pressure from Others	.013				
Classes					
Adaptive Perfectionist	-.166				
Maladaptive Perfectionist	-.065				
High-Scoring Perfectionism	.097				
Moderate-Scoring Perfectionism	.112				

**$p < .01$.

Results of the second run of Choice/Commitment Anxiety are shown in Table 19, for which the perfectionism classes (Set 1) were inserted into the model before the perfectionism factors (Set 2). The relationship between Choice/Commitment Anxiety and perfectionism classes was significant, $R^2 = .06$, adjusted $R^2 = .05$, $F(4, 265) = 4.26$, $p < .01$. Membership to the adaptive perfectionism class significantly predicted lower Choice/Commitment Anxiety scores. However, the perfectionism factors predicted significantly over and above the perfectionism classes, R^2 change = .18, $F(5, 260) = 12.67$, $p < .01$. Results of the second run also demonstrated that, once perfectionism factors were inserted into the model, the significant predictive quality of membership in the adaptive perfectionism class disappeared. As was observed in the first run, higher Discrepancy factor scores predicted higher Choice/Commitment Anxiety.

Table 19. Summary of hierarchical regression for Choice/Commitment Anxiety, classes entered first.

Variable	β	R^2	ΔR^2	Δdf	ΔF
Set 1		.060	.000	4, 265	4.263**
Classes					
Adaptive Perfectionist	-.290**				
Maladaptive Perfectionism	-.050				
High-Scoring Perfectionism	.047				
Moderate-Scoring Perfectionism	.104				
Set 2		.245	.184	5, 260	12.667**
Classes					
Adaptive Perfectionist	-.166				
Maladaptive Perfectionist	-.065				
High-Scoring Perfectionism	.097				
Moderate-Scoring Perfectionism	.112				
Factors					
Discrepancy	.438**				
High Standards	.086				
Order	-.039				
Excessive Standards	-.171				
Pressure from Others	.013				

**$p < .01$.

Neuroticism/Negative Affectivity. The results for the first run of the Neuroticism/Negative Affectivity factor of the CIP-65 are shown in Table 20. The analysis for the first run evaluates how well Neuroticism/Negative Affectivity is predicted by the perfectionism factors (Set 1) and how well Neuroticism/Negative Affectivity is predicted by the perfectionism classes (Set 2) over and above perfectionism factors. The relationship between Neuroticism/Negative Affectivity and perfectionism factors was significant, $R^2 = .41$, adjusted $R^2 = .40$, $F(5, 264) = 36.66$, $p < .01$. Higher Discrepancy and Excessive Standards factor scores predicted higher Neuroticism/Negative Affectivity scores. The perfectionism classes did not predict significantly over and above the perfectionism factors, R^2 change = .010, $F(4, 260) = 1.14$, $p = .34$.

Table 20. Summary of hierarchical regression for Neuroticism/Negative Affectivity, factors entered first.

Variable	β	R^2	ΔR^2	Δdf	ΔF
Set 1		.410	.000	5, 264	36.66**
Factors					
Discrepancy	.566**				
High Standards	-.061				
Order	.036				
Excessive Standards	-.161*				
Pressure from Others	.071				
Set 2		.420	.010	4, 260	1.14
Factors					
Discrepancy	.553**				
High Standards	-.004				
Order	.067				
Excessive Standards	-.190*				
Pressure from Others	.056				
Classes					
Adaptive Perfectionist	-.088				
Maladaptive Perfectionist	.044				
High-Scoring Perfectionism	.040				
Moderate-Scoring Perfectionism	.072				

*$p < .05$. **$p < .01$.

Results of the second run of Neuroticism/Negative Affectivity are shown in Table 21, for which the perfectionism classes (Set 1) were inserted into the model before the perfectionism factors (Set 2). The relationship between Neuroticism/Negative Affectivity and perfectionism classes was significant, $R^2 = .18$, adjusted $R^2 = .09$, $F(4, 265) = 7.60$, $p < .01$. Membership to the adaptive perfectionism class significantly predicted lower Neuroticism/Negative Affectivity scores. However, the perfectionism factors significantly predicted Neuroticism/Negative Affectivity over and above the perfectionism classes, R^2 change = .317, $F(5, 260) = 28.44$, $p < .01$. In addition, the significant relation of membership in the adaptive perfectionist class found in Set 1,

disappeared once the perfectionism factors were added to the model. As was observed in the first run, higher Discrepancy and Excessive Standards factor scores predicted higher Neuroticism/Negative Affectivity.

Table 21. Summary of hierarchical regression for Neuroticism/Negative Affectivity, classes entered first.

Variable	β	R^2	ΔR^2	Δdf	ΔF
Set 1					
Classes		.103	.000	2,265	7.60**
Adaptive Perfectionist	-.312**				
Maladaptive Perfectionism	.012				
High-Scoring Perfectionism	.022				
Moderate-Scoring Perfectionism	.100				
Set 2		.420	.317	5, 260	28.44**
Classes					
Adaptive Perfectionist	-.088				
Maladaptive Perfectionist	.044				
High-Scoring Perfectionism	.040				
Moderate-Scoring Perfectionism	.072				
Factors					
Discrepancy	.553**				
High Standards	-.004				
Order	.067				
Excessive Standards	-.190*				
Pressure from Others	.056				

*$p < .05$. **$p < .01$.

Lack of Readiness/Immaturity. The results for the first run of the Lack of Readiness/Immaturity factor of the CIP-65 are shown in Table 22. The analysis for the first run evaluates how well Lack of Readiness/Immaturity is predicted by the perfectionism factors (Set 1) and how well Lack of Readiness/Immaturity is predicted by the perfectionism classes (Set 2) over and above perfectionism factors. The relationship between Lack of Readiness/Immaturity and perfectionism factors was significant, $R^2 = .55$, adjusted $R^2 = .54$, $F(5, 264) = 64.52$, $p < .01$. Higher Pressure from Others factor

scores predicted higher Lack of Readiness/Immaturity scores. Higher Excessive Standards and High Standards factor scores predicted lower Lack of Readiness/Immaturity scores. The perfectionism classes did not predict significantly over and above the perfectionism factors, R^2 change = .003, $F(4, 260) = .43$, $p = .79$.

Table 22. Summary of hierarchical regression for Lack of Readiness/Immaturity, factors entered first.

Variable	β	R^2	ΔR^2	Δdf	ΔF
Set 1		.55	.000	5, 264	64.516**
Factors					
Discrepancy	.055				
High Standards	-.470**				
Order	-.067				
Excessive Standards	-.224**				
Pressure from Others	.212**				
Set 2		.553	.003	4, 260	.429
Factors					
Discrepancy	.052				
High Standards	-.388**				
Order	-.050				
Excessive Standards	-.182*				
Pressure from Others	.223**				
Classes					
Adaptive Perfectionist	-.125				
Maladaptive Perfectionist	-.057				
High-Scoring Perfectionism	-.065				
Moderate-Scoring Perfectionism	-.067				

*$p < .05$. **$p < .01$.

Results of the second run of Lack of Readiness/Immaturity are shown in Table 23, for which the perfectionism classes (Set 1) were inserted into the model before the perfectionism factors (Set 2). The relationship between Lack of Readiness/Immaturity and perfectionism classes was significant, $R^2 = .45$, adjusted $R^2 = .45$, $F(4, 265) = 55.17$, $p < .01$. Membership to the adaptive perfectionism class, the maladaptive perfectionism

class, and the high scoring perfectionism class significantly predicted lower Lack of Readiness/Immaturity scores. However, again the perfectionism factors predicted significantly over and above the perfectionism classes, R^2 change = .099, $F(5, 260)$ = 11.46, $p < .01$. As was observed in the first run, higher Pressure from Others scores predicted higher Lack of Readiness/Immaturity scores, and higher Excessive Standards and High Standards scores predicted lower Lack of Readiness/Immaturity scores.

Table 23. Summary of hierarchical regression for Lack of Readiness/Immaturity, classes entered first.

Variable	β	R^2	ΔR^2	Δdf	ΔF
Set 1		.454	.446	4, 265	55.167**
Classes					
Adaptive Perfectionist	-.801**				
Maladaptive Perfectionism	-.361**				
High-Scoring Perfectionism	-.182**				
Moderate-Scoring Perfectionism	-.093				
Set 2		.553	.099	5, 260	11.459**
Classes					
Adaptive Perfectionist	-.125				
Maladaptive Perfectionist	-.057				
High-Scoring Perfectionism	-.065				
Moderate-Scoring Perfectionism	-.067				
Factors					
Discrepancy	.052				
High Standards	-.161**				
Order	.115				
Excessive Standards	-.075*				
Pressure from Others	.068**				

*$p < .05$. **$p < .01$.

Interpersonal Conflicts and Barriers. The results for the first run of the Interpersonal Conflicts and Barriers factor of the CIP-65 are shown in Table 24. The analysis for the first run evaluates how well Interpersonal Conflicts and Barriers is predicted by the perfectionism factors (Set 1) and how well Interpersonal Conflicts and

Barriers is predicted by the perfectionism classes (Set 2) over and above perfectionism factors. The relationship between Interpersonal Conflicts and Barriers and perfectionism factors was significant, $R^2 = .156$, adjusted $R^2 = .140$, $F(5, 264) = 9.755$, $p < .01$. Higher Discrepancy and Pressure from Others factor scores predicted higher Interpersonal Conflicts and Barriers scores. The perfectionism classes did not predict significantly over and above the perfectionism factors, R^2 change = .009, $F(4, 260) = .71$, $p = .59$.

Table 24. Summary of hierarchical regression for Interpersonal Conflicts and Barriers, factors entered first.

Variable	β	R^2	ΔR^2	Δdf	ΔF
Set 1		.156	.000	5, 264	9.755**
Factors					
Discrepancy	.202**				
High Standards	-.078				
Order	-.013				
Excessive Standards	-.019				
Pressure from Others	.222**				
Set 2		.165	.009	4, 260	.711
Factors					
Discrepancy	.196**				
High Standards	.066				
Order	.024				
Excessive Standards	-.098				
Pressure from Others	.199**				
Classes					
Adaptive Perfectionist	-.236				
Maladaptive Perfectionist	-.078				
High-Scoring Perfectionism	.094				
Moderate-Scoring Perfectionism	.112				

**$p < .01$.

Results of the second run of Interpersonal Conflicts and Barriers are shown in Table 25, for which the perfectionism classes (Set 1) were inserted into the model before the perfectionism factors (Set 2). The relationship between Interpersonal Conflicts and

Barriers and perfectionism classes was significant, $R^2 = .06$, adjusted $R^2 = .05$, $F(4, 265) = 4.48$, $p < .01$. Membership to the adaptive perfectionism class and the moderate-scoring class significantly predicted lower Interpersonal Conflicts and Barriers scores. However, the perfectionism factors predicted significantly over and above the perfectionism classes, R^2 change = .102, $F(5, 260) = 6.34$, $p < .01$. Moreover, the significant prediction of membership in the adaptive perfectionist group vanished when the perfectionism factors were entered in to the model. As was observed in the first run, higher Discrepancy and Pressure from Others factor scores predicted higher Interpersonal Conflicts and Barriers scores.

Table 25. Summary of hierarchical regression for Interpersonal Conflicts and Barriers, classes entered first.

Variable	β	R^2	ΔR^2	Δdf	ΔF
Set 1		.063	.000	4, 265	4.480**
Classes					
Adaptive Perfectionist	-.321**				
Maladaptive Perfectionism	-.076				
High-Scoring Perfectionism	.146				
Moderate-Scoring Perfectionism	.175*				
Set 2		.165	.102	5, 260	6.336**
Classes					
Adaptive Perfectionist	-.236				
Maladaptive Perfectionist	-.078				
High-Scoring Perfectionism	.094				
Moderate-Scoring Perfectionism	.112				
Factors					
Discrepancy	.196**				
High Standards	.066				
Order	.024				
Excessive Standards	-.098				
Pressure from Others	.199**				

*$p < .05$. **$p < .01$.

Chapter V. Discussion

Research Question 1: Psychometric Properties of Perfectionism

In the first section of the present study I examined whether an overarching structure of perfectionism exists. This was done by examining the class and factor structures of two extensively used perfectionism measures, the APS-R and the HFMPS. The APS-R is almost exclusively used to identify and analyze different types of perfectionists (adaptive, maladaptive, non-perfectionist), while the HFMPS is commonly used to measure dimensions of perfectionism traits (self-oriented, other-oriented, socially-prescribed). Each instrument was examined categorically and dimensionally in the current study. This was done for two reasons, to establish the latent structure of each measure, and to ascertain whether the two instruments share a latent structure. With regard to categories of perfectionists, the questions addressed via latent class analysis were: Would the previously established 3-cluster structure of the APS-R be replicated? Would the HFMPS also adhere to a 3 cluster structure? And finally, would these two instruments combined reveal a common 3-cluster structure? These questions were addressed using Latent Class Analysis.

With regard to dimensions of perfectionism, the sole question was: Do the APS-R and the HFMPS share a set of common latent continuous factors? This second question was addressed using item level Principal Axis Factor Analysis with oblique promax rotation.

In the present study, LCA analyses of the APS-R failed to produce an optimal model fit. Only one fit index, the LMRT, suggested a class structure for the instrument.

Although support for a three-class model is weak, these three classes of the APS-R paralleled findings in the literature identifying three clusters of perfectionists (Grzegorek et al., 2004; Mobley et al., 2005, Rice et al., 2002), commonly referred to as adaptive perfectionists, maladaptive perfectionists, and non-perfectionists, that vary in their specific scoring patterns across the three APS-R subscales. One class identified in this study produced an APS-R subscale score pattern that is suggested as indicative of maladaptive perfectionists, revealing high scores on both the Discrepancy and the High Standards subscales. A second class extracted in this study indicated an APS-R subscale score pattern that is expected of adaptive perfectionists, low Discrepancy and high High Standards subscales scores. The last class identified in this study matches the established APS-R subscale score pattern of non-perfectionists, with lower High Standards subscale scores than the adaptive perfectionists or the maladaptive perfectionists, and lower Discrepancy subscales scores than the maladaptive perfectionists. As has been indicated previously with cluster analysis (Rice et al., 2002), this study found non-significant differences between the three classes on the Order subscale of the APS-R. These findings lend some support for a) the existence of three subgroups of perfectionism within the APS-R, and b) the use of the APS-R High Standards and Discrepancy subscales only when discriminating between types of perfectionists, as Order subscale scores do not differ by class.

As mentioned previously, LCA results of this study also failed to produce an optimal model fit for the HFMPS. However, the three classes that were indicated by the LMRT index appeared to represent meaningfully different classes from those extracted

from the APS-R, and a different structure of the classes. The classes of the HFMPS appeared to be constructed by level or rank, such that one group, the high-scoring class, had the highest scores of all three classes across each of the three subscales (Self-Oriented, Other-Oriented, Socially-Prescribed) of the HFMPS. The second class had moderate scores across the three HFMPS subscales, and the final class had the lowest scores across the same three scales.

A combined latent class analysis of the APS-R and HFMPS revealed, once again, weak evidence for a class structure of these instruments. Based on results of only the LMRT fit index, a possible 6-class structure emerged that graphically and numerically produced a 3-class structure of the APS-R and a 3-class structure of the HFMPS. This analysis may suggest that the subscales of the APS-R and HFMPS differed significantly from each other in their structure at the categorical level in two ways. First, six distinct groups of perfectionists were identified: three groups paralleling the APS-R scoring patterns of clusters referred to in the literature as adaptive perfectionists, maladaptive perfectionists, and non-perfectionists; and three groups within the HFMPS that represented a ranked scoring pattern with a high-scoring class, a moderate-scoring class, and a low-scoring class. Second, while the APS-R groups appeared to represent three different homogeneous groups of individuals that varied in their pattern of responses across the three APS-R subscales, the HFMPS groups appeared to represent a single, heterogeneous sample that was divided amongst those that score low, moderate, or high along a single dimension. These results suggest that these scales may measure different types of perfectionists, and therefore may have different underlying structures that are

creating these manifest patterns. However, LCA results of this study collectively indicate that the APS-R and the HFMPS may not be suitable for categorical analyses, as LCA results did not show a point of optimization for either scale, or the two scales combined.

Item level exploratory factor analyses of the APS-R and HFMPS scales (68 total items) indicated a 9-factor solution. Despite the fact that this result replicated the number of factors Trumpeter et al. (2006) extracted from the HFMPS alone, at least three of the factors extracted in the current study appeared problematic. Factor 9 included only one item that loaded more highly on this factor than any other factor, and therefore it was concluded that factor 9 did not appear to represent a theoretically meaningful factor. Factor 7 was also problematic, and included only the reverse-coded items from the SPP subscale of the HFMPS, while another factor included all but one of the traditionally coded items from this same subscale. Although a 2-factor structure of the SPP subscale was also extracted by Campbell and di Paula (2002) the factors they extracted, called Conditional Acceptance and Others' High Standards, appeared to have meaningful manifest content relating to the beliefs that others will withdraw support as a consequence of failure, and others have high standards for one's performance, respectively. It is presumed in the current study that these SPP items loaded on two different factors not because they inherently represent different latent factors, but because of the tendency for negatively worded items to be less discriminating (Kane & Radosevich, 2010). This most likely created an arbitrary difference between the two halves of the SPP subscale in this study. An identical issue occurred with the OPP subscale of the HFMPS in this study, such that two factors were extracted from this

subscale, one factor consisted of negatively worded items, and the other factor consisted of items expressed in the affirmative. Replicating the findings of Slaney et al. (1996) three factors were extracted from the APS-R, each with strong internal consistency and reliability. Each of the three factors was composed exclusively from items of one subscale of the APS-R (e.g., Factor 1 was comprised of the 12 items of the Discrepancy subscale of the APS-R). These results suggest a slightly more complex dimensional structure than the 2-factor APS-R structure (adaptive perfectionism, maladaptive perfectionism) extracted by Cox et al. (2002). These results also indicate that the subscale items are robust indicators of the constructs they were developed to represent. The APS-R subscales sort cleanly into factors using the same items that compose the three clusters within the APS-R.

A 6-factor solution was chosen for the confirmatory factor analysis, which fit a model that was thought to be a parsimonious way to represent the six subscales (3 APS-R subscales, 3 HFMPS subscales) of the two perfectionism instruments while appropriately re-fitting the two factors created from the reverse-coded items of the SPP and OOP subscales of the HFMPS, and the one factor that appeared to lack theoretical meaning. Items that considerably cross-loaded on two or more factors were removed from CFA analyses. CFA results indicated a moderate, but not strong, fit of the parsimonious model. This result was moderately expected, as item-level factor analyses does not produce as strong of a model fit as scale level factor analyses. However, as indicated by Stairs et al (2012) item-level factor analysis may inform essential modification of perfectionism instruments, ultimately allowing for stronger, and possibly clearer,

inferences to be made regarding the nature of perfectionism, as factor analytic findings in this body of literature are equivocal.

The 6-factor model included the following factors: Discrepancy (consisting of all items from the Discrepancy subscale of the APS-R), Order (consisting of all items from the Order subscale of the APS-R), High Standards (consisting of all items from the Standards subscale of the APS-R), Excessive Standards (consisting of 14 of the original 15 items from the SOP subscale of the HFMPS), Pressure from Others (consisting of 12 of the original 15 items from the SPP subscale of the HFMPS), and Perfectionism Toward Others (consisting of 8 of the 15 original items from the OOP subscale of the HFMPS). Because the 6-factor model only produced moderate fit, the CFA model was then respecified, creating an 8-factor model using all but one factor extracted from the EFA in this study. The excluded factor was believed to represent a theoretically meaningless factor. This respecification resulted in a slightly improved model fit, but not one that theoretically made sense, as two of the 8 factors were composed exclusively of reverse-coded items of those that loaded on other factors. Finally, a 5-factor model was specified by removing the HFMPS OOP subscale. This respecification resulted in poorer model fit than either the six or eight-factor models, despite the thought that this model might increase model fit through removal of the OOP subscale, which produced low internal consistency and reliability values for most items of this subscale. Although the 6-factor model fit was only moderate, the factor analysis results appeared to underscore the likelihood that the APS-R and the HFMPS measure inherently different qualities, or traits of perfectionism. Very few items from the APS-R cross-loaded with those from the

HFMPS, and those few items that did cross-load on the two instruments had loadings on one scale much higher than loadings on the other scale.

The combined latent class analysis and factor analysis results of this study seem to lend further support for recent findings arguing that what researchers have referred to as perfectionism may really be a collection of several dimensional traits (Stairs, Smith, Zapolski, Combs, & Settles, 2012). Latent class analyses failed to produce evidence for a categorical, or class structure of either the APS-R or the HFMPS. Results of the exploratory factor analyses also revealed a factor pattern less distinctive than hoped for. However, reduction of the 9-factor EFA to a theoretically relevant 6-factor CFA proved to be a moderately acceptable fit of the postulated model, empirically and theoretically.

Research Question 2: Relation of Perfectionism to Career Indecision

Structure of CIP-65.

The second section of this study examined the extent to which perfectionism predicted four factors of career indecision. First, because the CIP-65 is a relatively new instrument, the factor structure of the instrument was identified. Results confirmed the 4-factor structure extracted by Brown et al. (2011), including: a) Choice/Commitment Anxiety, b) Neuroticism/Negative Affectivity, c) Lack of Readiness/Immaturity, and d) Interpersonal Conflicts and Barriers. All CIP-65 items loaded onto the factors identified by Brown et al. with the exception of two items, both of which cross-loaded within .20 on one other factor. Even including the cross-loading of these two items, internal consistency and reliability estimates of each of the four career indecision factors were

strong. Generally, factor analytic results indicated strong support for the four-factor model of the CIP-65.

Predicting Career Indecision with Perfectionism.

As aforementioned, the Perfectionism Toward Others factor (comprised of items from the OOP subscale of the HFMPS) was removed prior to regression analyses due to the psychometric issues previously discussed. It was hypothesized that, generally, higher scores for theoretically maladaptive perfectionistic factors (Discrepancy, Excessive Standards, Pressure from Others) and membership in classes that are theoretically posited to represent maladaptive perfectionists (Maladaptive Perfectionist, High-Scoring group) would predict increased career indecision factor scores while lower adaptive perfectionism factor scores (High Standards, Order) and membership in conceivably adaptive perfectionist classes (Adaptive Perfectionist, Low-Scoring group) would predict decreased career indecision factor scores.

Interestingly, results resoundingly indicated that the dimensional factor structure of perfectionism with the HFMPS, as well as with the APS-R, consistently predicted career indecision more effectively than the categorical cluster structure of perfectionism in every circumstance in this study. These results are notable, and provide considerable evidence that the APS-R should be used as a dimensional instrument of perfectionism, despite the fact that most published research incorporating the APS-R used the instrument to perform categorical analyses. These results also support the contention of the authors of the HFMPS, that perfectionism is dimensional, and should be measured accordingly. Findings for the relation of perfectionism factors with specific career indecision factors

are presented below. Discussion of significant relation between perfectionism classes and career indecision is excluded from this summary, as categorical use of perfectionism measures contributed no predictive power once perfectionism factors were inserted into the analyses of career indecision.

Choice/Commitment Anxiety. It was hypothesized that the predictors representing what has generally been referred to as maladaptive or negative perfectionism (Maladaptive Perfectionist class, High-Scoring Perfectionist class, Discrepancy factor, Excessive Standards factor, and Pressure from Others factor) would positively account for the Choice/ Commitment Anxiety factor of the CIP-65. This hypothesis was partially supported, such that higher Discrepancy factor scores significantly predicted increased Choice/Commitment Anxiety scores. This result is not surprising, as it makes sense that individuals who experience considerable discrepancy between performance expectations and actual performance may experience some degree of stress about their decisions and choices. This stress may motivate these individuals to try to avoid future discrepant experiences by carefully choose the "correct" major or career. However, this stress may also simultaneously make it more difficult for such individuals to either make a decision or trust a decision once it is made.

Neuroticism/Negative Affectivity. It was hypothesized that the predictors representing maladaptive or negative perfectionism would predict Neuroticism/Negative Affectivity. Partially supporting this hypothesis, Higher Discrepancy factor and Excessive Standards factor scores significantly predicted higher Neuroticism/Negative Affectivity. This result was to be expected, as maladaptive perfectionists (who are

characterized as having high scores on both of these factors) report higher levels of depression than adaptive perfectionists (Mobley et al., 2005). Further, individuals with excessively high standards (e.g., "It is very important that I am perfect in everything I attempt.") have been found to endorse global expectations of perfection that is impossible for any individual to achieve.

Lack of Readiness/Immaturity. It was hypothesized that the predictors representing adaptive perfectionism would negatively account for Lack of Readiness/Immaturity, such that membership in the Adaptive Perfectionist class and elevated scores on the High Standards factor would predict lower Lack of Readiness/Immaturity scores. As individuals who report high standards or membership in the Adaptive Perfectionism class also generally report positive outcomes, it was thought that the creation and maintenance of high standards would most likely be negatively related to low career decision-making self-efficacy and the lack of planfulness and goal-directedness inherent to the Lack of Readiness/Immaturity factor of career indecision. This hypothesis was partially supported, such that elevated High Standards factor scores were found to predict lower Lack of Readiness/Immaturity scores. High Excessive Standards factor scores also predicted lower Lack of Readiness/Immaturity scores. Membership the Adaptive Perfectionist class did not significantly predict lower Lack of Readiness/Immaturity scores over and above the High Standards and Excessive Standards factors, again demonstrating the higher predictive ability of career indecision via dimensional analysis of perfectionism items (via factors) than categorical analysis (via clusters) of the same items.

An unanticipated finding related to Lack of Readiness/Immaturity was the significant relation of higher Pressure from Others factor scores on this career indecision factor. Findings indicated that higher Pressure from Others predicted increased Lack of Readiness. It is possible that overbearing, and conditionally accepting behaviors of friends, partners, or family members may cultivate a sense of learned helplessness in the individual, manifesting career-wise in low confidence and ability to make good career-related decisions.

Interpersonal Conflicts and Barriers. It was hypothesized that the Pressure from Others factor would significantly and positively predict Interpersonal Conflicts and Barriers. This hypothesis was supported. Additionally, and not included in the study hypotheses, was the significant positive relation of Discrepancy and Interpersonal Conflicts and Barriers. Previous research has shown Discrepancy to be related to fear of intimacy (Martin et al., 2004), and lower relationship quality (Ashby et al., 2008). The current findings suggest that interpersonal concerns to some degree impact career indecision.

Limitations

It is important for the current study to be understood within the context of its limitations. First, some researchers may disagree with my decision to include or exclude certain measures from this study, many of which have been documented as important predictors of perfectionistic thoughts and behaviors. While my aim in selecting the APS-R and HFMPS for use was to examine the structure of two, theoretically different perfectionism instruments, without also including other instruments that had shown some

overlap with either instrument, I recognize that continued systematic examination of all perfectionism instruments (a la Stairs et al., 2012) could create consensus in the field of perfectionism research and streamline the current collection of methodologically erratic practices used to understand the construct.

Some may question the decision to omit the HFMPS OOP subscale from career-related analysis in this study, as it is possible that a relational component of perfectionism may have intrapersonal consequences not unrelated to career decision-making. For this same reason, others may argue against the omission of the Dyadic Almost Perfect Scale. Indeed the current study found interpersonal predictors of career indecision that are worth further examination.

Finally, others may raise concern about the generalization of the LCA and FA findings of this study, given that the first sample in this study was predominately white and female, who all attended the same university in the Southwest United States. The findings relating perfectionism to career indecision were obtained from a second, specific sample of undergraduates enrolled in career exploration courses. It is possible that students enrolled in these courses represent a unique subgroup of young adults. It is possible that the results of this study may not generalize to other populations. Consequently, replication of this study with a more gender-balanced, and general young adult population may provide support for the results obtained with the aforementioned samples.

Research Implications

These findings present important points of consideration for future research. First, although the Latent Class Analysis results were inconclusive, factor analyses provided moderate support that the APS-R and the HFMPS most likely do not represent the same latent factors. Recent and compelling research including these measures corroborates this claim (Stairs et al., 2012). For that reason, researchers are cautioned against summarizing research developed with the APS-R with that developed using the HFMPS, as the current study provided some indication that these scales are not interchangeable and represent, at the very least, considerably different traits underlying perfectionism. The comprehensive, replicable analyses of perfectionism instrumentation is an important step toward clarifying a universal conception of the construct. This important work has recently been started by Stairs et al. and must be continued. Until this essential groundwork is laid, the literature in this area risks having little to no impact on those who suffer the deleterious effects of maladaptive perfectionism, as treatment and outcome research require a sound conception of the condition or malady that is being targeted.

Second, researchers are in disagreement about how to understand perfectionism, as type or as trait. It is possible that this distinction does not matter; for example, as soundly discussed in a meta-analysis by Stoeber and Otto (2006), both categorical and continuous representations of perfectionism in the literature tend to share core adaptive and maladaptive facets of perfectionism. However, while the findings of the current study should not be interpreted as a dispute of Stoeber and Otto's point, these findings do

suggest that measurement choice of perfectionism as categorical or dimensional may result in meaningfully different findings.

The HFMPS and the APS-R were both used in this study, first categorically, then dimensionally, to predict career indecision. The dimensional use of both instruments consistently predicted factors of career indecision over and above the categorical use of the same instruments on every occasion. In addition, the categorical structure of perfectionism instruments failed to indicate the relation between perfectionism and career indecision to the same level of specificity that it was indicated by the dimensional use of these same perfectionism instruments. For example, I found that membership in the Adaptive Perfectionist class negatively and significantly predicted Choice/Commitment Anxiety. Recall that membership in this class was identified by elevated High Standards scores and low Discrepancy scores. However, the next level of this regression analysis using separate factors for High Standards and Discrepancy did not provide evidence that both of these elements predicted Choice/Commitment Anxiety. Rather, while the Discrepancy factor significantly predicted Choice/Commitment Anxiety, High Standards did not. These results indicate that categories of perfectionism that are defined by combining more than one perfectionism factor (e.g., Discrepancy and High Standards) may misrepresent how perfectionism may be related to other constructs. These results suggest that, at least in the case of career indecision, both the APS-R and the HFMPS should be used dimensionally, not categorically. Similar analytical techniques with additional criterion variables may lend additional support for this claim.

Clinical Implications

There are also a considerable number of clinical implications of this study. First, using the example that I just discussed - the relation of perfectionism and Choice/Commitment Anxiety - misrepresentation of this relation has considerable clinical assessment and treatment implications. Assessment of perfectionism via previously established categories (i.e., Adaptive Perfectionist) would sort individuals into groups based upon facets of perfectionism that are related to Choice/Commitment Anxiety (e.g., Discrepancy), along with other facets of perfectionism that are entirely unrelated to Choice/Commitment Anxiety (e.g., High Standards). A more accurate assessment of perfectionism, at least in relation to career indecision, may include identification of individuals' scores across each of the unidimensional factors of perfectionism. This second type of assessment could allow for an individualized perfectionism profile, which not only produces clear assessment results, but may have considerable implications for treatment as well. Results from the current study indicate that the various aspects of perfectionism predict very different career indecision concerns. Should a career counselor be informed of the specific elements of perfectionism experienced by a client or student, this knowledge could inform a customized approach to career counseling interventions with that particular individual. As mentioned by Brown and McPartland (2005), career counseling should not be considered a "one size fits all" resource. Specificity of assessment of career indecision (using the CIP-65) and factors that may precipitate career indecision (e.g., perfectionism) will allow for greater understanding of

an individual client, and may contribute substantially to the development of increasingly efficacious career counseling interventions.

Another consideration with regard to categorization of perfectionists includes the fact that the established category labels of the APS-R, which are very commonly used, may provide misleading expectations about the characteristics of each group, particularly in relation to career indecision. For example, the category name "Non-perfectionist", which is defined by medium to low High Standards scores and medium to high Discrepancy scores, indicates that members of this group lack any perfectionistic characteristics that may be problematic. However, previous research indicates that non-perfectionists consistently report Discrepancy scores that are the same as or slightly lower than those of Maladaptive Perfectionists. Failure to acknowledge this information about Non-perfectionistic individuals may result in incorrect assessment of individuals in this category as having no problems with career decision-making or other factors related to perfectionism, when in fact, this group may need just as much attention as the Maladaptive Perfectionists due to their tendency to find shortcomings in their performance at school or work.

The current study also found that negative aspects of perfectionism relate to all four factors of career indecision. Discrepancy in particular, the negative facet of perfectionism that measures the gap between personal expectations for performance and actual performance, appeared to be most related to career indecision, predicting three of the four career indecision factors examined in this study. This perception of personal shortcomings was related to: a) an inability to make a career choice between multiple

appealing options, b) conflicts with others regarding career decision-making, and c) poor psychological outcomes such as increased state and trait anxiety, depressed affect, decreased self-esteem and psychological hardiness, avoidant coping, and an external locus of control. Taken together, these results suggest that individuals with high Discrepancy scores may struggle with the developmental challenge of career indecision, as well as the broader personality attribute of indecisiveness. Individuals with elevated Discrepancy scores may benefit from more intensive career counseling that addresses a combination of cognitive and emotional factors related to both career decision-making and broader personal functioning. Career counseling that addresses these concerns may include self-esteem building, development of active coping techniques, and career exploration self-efficacy training.

It is also important to note that positive aspects of perfectionism seem to buffer individuals from some, but not all, aspects of career indecision. Both Excessive Standards (striving for perfection) and High Standards (striving to do one's best) negatively predicted the Lack of Readiness/Immaturity career indecision factor, indicating that such standards are related to a strong sense of self, increased motivation and conscientiousness, stable career goals and increased career decision-making self-efficacy. Individuals with Excessive Standards also had lower Neuroticism/Negative Affectivity scores. These results indicate that individuals with such standards who also experience career decision-making challenges may have considerable internal resources to help them make such decisions. These individuals may benefit from strength-based

career counseling, which could help them identify the significant inner resources they possess and apply these resources to the career decision-making process.

Finally, relational aspects of perfectionism seem to also relate to career indecision. A perceived pressure from others to perform well (i.e., Pressure from Others factor) was shown to predict higher Lack of Readiness/Immaturity and Interpersonal Conflicts and Barriers scores. It therefore seems that the interpersonal components of perfectionism, namely the perception that others have high standards for one's performance and may also relinquish support if those standards are not achieved, are related to the both interpersonal and intrapersonal factors of career indecision. These results indicate that perceived pressure from others manifests in the career decision-making process in two ways. First, it serves as pressure to conform to others' career expectations and belief that others will relinquish support if the individual ignores others' career choice for him/her and chooses his/her own desires. Second, this pressure impacts personal elements of career decision-making such as identity diffusion, lack of self-clarity, unstable career goals, and a lack of motivation and mature career attitudes. It would seem that this sort of pressure from others creates a lose-lose situation in which the individual is forced to choose between a preferred career and the support of their social support system. It also appears that this pressure from others has consequences in terms of personal identity development. These results suggest possible merit in incorporating an interpersonal component into career exploration courses and career counseling for individuals who perceive such pressure from others regarding their standard of performance and career decisions. Although career counseling commonly focuses on

intrapersonal considerations such as personal skills, interests, and values, these such emphases may not adequately address the career-related difficulties of individuals experiencing pressure from others, or the identity confusion that may be an unintended consequence of the struggle between pleasing others and following one's own desires.

Ultimately, because of the considerable relation between perfectionism and career indecision factors, career counseling professionals are encouraged to consider use of a multidimensional assessment of perfectionism in the assessment phase of their work. Identification of specific dimensions of both positive and negative perfectionism may reveal possible causes of individuals' career indecision challenges. This assessment may also inform treatment planning by customizing interventions best suited to address specific aspects of perfectionism.

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