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Examination of The Big Five And Narrow Traits In Relation To Learner Self-Direction

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Examination of the Big Five and Narrow Traits in Relation To Learner Self-Direction

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Dedication

I would like to dedicate this to my daughter, Brina, and my son, Jarin—they had to put up with my crazy schedule and nights of working when I did not give them the attention they wanted and deserved; to my mom who changed her life around to help me take care of my children; and to my friends and colleagues who helped me through this ordeal (you know who you are).

Abstract

Self-direction in learning is a major topic in the field of adult learning. There has been extensive coverage of the topic by theorists, researchers, and practitioners. However, there have been few studies which look at learner self-direction specifically as a personality trait. The present study addresses the relationship between learner self-direction and other personality traits of college students when the traits represented by the five-factor model of personality (Digman, 1990) are differentiated from narrow personality traits. Archival data were used from an undergraduate sample at a large Southeastern U.S. university (sample size = 2102). Correlation and multiple regression analyses were used in examining the unique individual relationship between Big Five and narrow personality traits and learner self-direction. Analysis of the data revealed five significant part correlations between specific traits and learner self-direction. The part correlations for Work Drive (.310) and Openness (.207) were significantly higher than all other part correlations. Neither Conscientiousness nor Agreeableness had significant part correlations despite having significant zero-order correlations with learner self-direction. Extraversion did not have a significant zero-order correlation with learner self-direction but the part correlation was significant. Results were discussed in terms of the predictive relationship between personality variables and learner self-direction. Study implications, some limitations, and possible directions for future research were noted.

Table of Contents

List of Tables

Chapter 1

Introduction to the Study

Self-direction in learning is a major topic in the field of adult learning. There has been extensive coverage of the topic by theorists, researchers, and practitioners (e.g., Brockett & Hiemstra, 1991; Long & Redding, 1991). Long (2007) has identified several themes and measurements of self-direction in learning that have focused on psychological factors. Several empirical measures have been developed to measure different dimensions of self-direction in learning that address psychological factors such as the *Self-Directed Learning Readiness Scale (SDLRS)* (Guglielmino, 1977), the *Oddi Continuing Learning Inventory (OCLI)* (Oddi, 1984), and more recently the *Personal Responsibility Orientation to Self-Direction in Learning Scale (PRO-SDLS)*(Stockdale & Brockett, 2011). Research has shown that psychological variables are directly related to learner self-direction (e.g., Oliveira & Simões, 2006). However, there have been few studies which look at learner self-direction specifically as a personality trait. This dissertation is directly based on and extends the work of Lounsbury, Levy, Park, Gibson, and Smith (2009) and Kirwan, Lounsbury, and Gibson (2010). The present study differs from the previous two studies in that it examines the unique relationship of individual traits to learner self-direction and their relative importance in accounting for variation in learner self-direction.

Statement of the Problem

In order to explicate the connection between personality and self-direction in learning, it is important to understand that personality traits are relatively stable. On the other hand, self-directed learning is situational and can vary over time. Therefore, the

question addressed here can be phrased as what is the unique relationship between specific personality traits and learner self-direction?

It has been shown that many psychological variables, such as Conscientiousness, are directly related to learner self-directedness (Oliveira & Simões, 2006). However, there have been few studies that look at learner self-direction specifically as a personality trait. If personality traits are relatively consistent for learners across situations and over time, and if learner self-direction changes across situations and over time, the most logical interpretation of why the personality trait—learner self-direction relationship is relatively consistent within and across such disparate factors as age and returning to college after a long break is because the personality traits are driving the relationship. This implies that other personality traits are affecting learner self-direction, not that learner self-direction is influencing other personality traits. The goal of the present study is to try to understand the connection between personality and self-direction in learning and ascertain to what extent individual personality traits are related to learner self-direction.

Purpose

The present investigation investigates whether narrow traits are related to learner self-direction and to see if they contribute incremental validity to the prediction of learner self-direction above and beyond the five-factor model of personality (Digman, 1990) (hereafter labeled the Big Five). The study draws on and extends the work of Lounsbury, Levy, Park, Gibson, and Smith (2009), who reported on the development of a valid personality measure of learner self-direction. Before turning to their findings, it is important to consider why this is an important topic.

Personality continues to be one of the most researched areas in the field of psychology. The most commonly used taxonomy is the five-factor model. The Big Five model has been found to be a robust and broad measure of normal personality (Tokar, Fischer, & Subich, 1998). Numerous studies have verified the factor structure and construct validity of the Big Five constructs of *openness, conscientiousness, extraversion, agreeableness, and neuroticism* (Costa & McCrae, 1994). The purpose of the present study is to look at unique relationships between learner self-direction and both Big Five and narrow personality traits. Narrow traits are conceptually narrower in scope than broad, Big Five traits and can sometimes be components of Big Five, such as for the NEO Extraversion scale, the six components are Warmth, Gregariousness, Assertiveness, Activity, Excitement-Seeking, and Positive Emotions (Costa & McCrae, 1992). But narrow traits can also be conceptually narrower (than the Big Five) traits like Tough-Mindedness which do not fit neatly into the Big Five (Lounsbury & Gibson, 2010).

In the current investigation, the focus is on a person's *learner self-direction* as an individual differences variable which can be represented on a continuum from low to high. Brockett and Hiemstra's (1991) proposed a two-dimension model where one dimension is learner self-direction. With respect to Brockett and Hiemstra's (1991) two-dimension, self-direction in learning model, the learner self-direction construct used in this study corresponds to their learner self-direction construct as "characteristics of an individual that predispose one toward taking primary responsibility for personal learning endeavors" (p. 29). Consistent with prior conceptualizations of self-direction in learning (e.g., Brockett, 1983; Brockett & Hiemstra, 1991; Costa & Kalick, 2003), learner self-direction was

conceptualized and measured as a personality trait reflecting an individual's preference to be in charge of their learning process; ability to conceptualize, plan, implement, and evaluate their academic experience; and disposition to be goal-oriented and to work independently or in group settings with little guidance.

Relationships between personality and learner self-direction among college students were chosen for several reasons. The college experience is regarded as providing "many opportunities for students to develop, among other things, personal and professional identity" (Hamrick, Evans, & Schuh, 2002, p.135). As Madison (1969) observed, college represents a unique and highly appropriate setting for studying aspects of personality such as identity and learning style. Moreover, for those individuals who go to college directly from high school, the college experience occurs during a key developmental period for identity development (Waterman, 1985, 1993), and it is regarded as playing a "critical role in identity formation" (Nakula, 2003, p.9).

Hypotheses

Previous research on broad and narrow personality traits in relation to learner self-direction has focused on either: a) bivariate correlations between the personality trait and learner self-direction; or b) the total variance in learner self-direction accounted for by Big Five or narrow traits. Because of some degree of multi-colinearity of the Big Five and narrow traits, in neither of the above cases do we know what is the unique relationship between the personality traits and learner self-direction or the unique amount of variance in learner self-direction accounted for by the personality trait. Thus, for example, we cannot say what is the unique or independent relationship between Openness and learner self-

direction after controlling for the influence of the other Big Five and narrow traits in relation to learner self-direction. To better understand how learner self-direction is related to each of the Big Five and narrow traits in their own right, without the added association or influence of the other traits, in the present study I examined the part correlation (which has also been termed the semi-partial correlation) between each personality trait and learner self-direction after controlling for the other Big Five and narrow traits. Where justifiable in terms of the empirical literature, I have advanced directional hypotheses; otherwise, I have examined the trait-learner self-direction relationship as a non-directional, research question. In addition, in those cases where prior results point toward a stronger relationship between the personality trait and learner self-direction, I have advanced hypotheses about the relative strength of pairs of part correlations. For example, because of the strength of the bivariate relationship between Openness and learner self-direction, I hypothesize that the part correlation between Openness and learner self-direction will be higher than the corresponding part correlations for all of the other traits examined here except Work Drive.

Below, I provide a brief rationale for each hypothesis using a twofold approach, involving: a) a deductive, construct-based approach (Barrick, Mount, & Gupta, 2003) which specifies how the meaning of the personality trait as construct aligns with the meaning of the learner self-direction construct; and 2) basing the hypothesis on prior research relating the personality trait to learner self-direction.

Big Five Traits

Hypothesis 1: Openness will be uniquely, positively related to learner self-direction after controlling for the other Big Five and narrow traits.

Hypothesis 1a: The part correlation for Openness and learner self-direction will be higher than all the corresponding part correlations for the other traits except Work Drive.

Self-directed learners are motivated by new learning in a non-traditional manner, which is consistent with the construct of Openness (Costa & McCrae, 1992). Individuals who score higher in learner self-direction would be expected to score higher in Openness since one of the main expressions of Openness is learning new material (Lounsbury & Gibson, 2010). Also, Oddi (1984) reported a positive correlation between the OCLI and open-mindedness. In addition, Kirwan, Lounsbury, and Gibson (2010) found that Openness was the Big Five trait most highly correlated with learner self-direction ($r = .43$, $p < .01$) and it was more highly correlated with learner self-direction than all but one of the narrow traits.

Hypothesis 2: Conscientiousness will be uniquely, positively related to learner self-direction after controlling for the other Big Five and narrow traits.

Learner self-direction requires a person to have some level of self-discipline and goal-directed behavior which is consistent with the construct of Conscientiousness (Costa & McCrae, 1992) because the latter measures an individual's inclination "to be reliable, trustworthy, dependable, orderly, and rule-following" (Lounsbury, Levy, et al., 2009, p.416). Kirwan, et al. (2010) found a significant positive correlation between

Conscientiousness and learner self-direction ($r = .20$, $p < .01$). Also, Oliveira & Simões (2006) found a statistically significant relationship between Conscientiousness and learner self-direction.

Hypothesis 3: Emotional Stability (the inverse of Neuroticism) will be uniquely, positively related to learner self-direction after controlling for the other Big Five and narrow traits.

Self-directed learners who score higher on this trait are likely to have higher levels of learner self-direction because they are more focused, purposeful, as well as less distracted and emotionally reactive, than traditional learners (i.e., more teacher-directed). This relationship is understandable in that individuals who score higher on Emotional Stability tend to worry less about personal problems and insecurities and may be better able to attend to learning projects (Lounsbury, Levy, et al., 2009). Indeed, several studies have confirmed a positive relationship between learner self-direction and Emotional Stability (e.g., Holmes, 2005; Lounsbury, Saudargas, & Gibson, 2004).

Hypothesis 4: Agreeableness will be uniquely, positively related to learner self-direction after controlling for the other Big Five and narrow traits.

Self-directed learners who score high on Agreeableness are inclined to be equable, participative, helpful, cooperative, and inclined to interact with others harmoniously. By way of rationale, more agreeable individuals often strive for cooperation (Costa & McCrae, 1992) which would facilitate self-directed learning in group settings. Self-directed learners who are lower on Agreeableness are inclined to be stubborn, argumentative, and oppositional (*ibid*), which could lead to lower levels of active, self-directed learning

(Chen, Wang, & Lin, 2006). In this vein, Kirwan, et al. (2010) found a modest, positive correlation between Agreeableness and learner self-direction ($r = .21$, $p < .01$).

Research Question 1: What is the relationship between Extraversion and learner self-direction?

Narrow Traits

Along with the Big Five traits, two narrow traits are studied in this dissertation. Work Drive and Openness were the only narrow traits chosen as they were the only two that have been consistently statistically significant in studies involving learner self-direction (Kirwan, et al., 2010; Lounsbury, Levy, et al., 2009).

Hypothesis 5: Work Drive will be uniquely, positively related to learner self-direction after controlling for the other Big Five and narrow traits.

Hypothesis 5a: The part correlation for Work Drive and learner self-direction will be higher than all the corresponding part correlations for the other traits.

Individuals high in Work Drive are inclined to work hard and for long hours to complete projects and they are motivated to extend themselves, if necessary, to finish projects, meet deadlines, attain quotas, and achieve success (Lounsbury & Gibson, 2010). Accordingly, students with high levels of Work Drive may have higher levels of learner self-direction because they set challenging learning goals for themselves, exert additional effort beyond normal class expectations, and extend themselves as needed to attain their learning goals (Lounsbury, Gibson, & Hamrick, 2004). In this regard, Kirwan et al. (2010) found that Work Drive was the narrow trait most highly correlated with learner self-direction ($r = .49$, $p < .01$) and was the

second highest of all the traits—including narrow and Big Five traits—after Openness.

Hypothesis 6: Optimism will be uniquely, positively related to learner self-direction after controlling for the other Big Five and narrow traits.

Individuals who are more optimistic tend to have a sanguine, hopeful outlook concerning prospects, people, and the future even in the face of difficulty and adversity. They also tend to minimize problems and persist in the face of setbacks as well as have higher levels of achievement-related dispositions (Hewitt & gordon, 1996). This aligns well with learner self-direction which is characterized by an individual being positive and open to new possibilities as well as persisting despite obstacles to achieving learning goals. Empirical support for such a relationship can be seen in Kirwan et al.'s (2010) finding of a positive correlation between Optimism and learner self-direction ($r = .31$, $p < .01$).

Conceptual Framework

In the rationale for their study, Lounsbury et al. (2009) made three important observations: (1) personality traits may influence or provide the foundation for self-direction in learning-development processes (p. 412); (2) when considered as a whole, much of the prior literature on the relationship between self-direction in learning and personality traits (Johnson, Sample, & Jones, 1988; Leitsch & Van Hove, 1998) is lacking in continuity; and (3) the Big Five model of personality represents an "organizing scheme" for understanding self-direction in learning-personality trait relations. With regard to the latter point, the Big Five model of personality traits of Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (which will referred to here by its inverse—

Emotional Stability) is widely accepted as a unified, parsimonious model of normal personality that has been validated in many different cultures and across several research settings (e.g., De Raad, 2000; Digman, 1997), with supporting studies based on many different demographic and personal characteristics of individuals (Costa & McCrae, 1994).

The results of the Lounsbury et al. (2009) study indicated that there was a significant relationship between the five-factors of Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism, with learner self-direction (p. 415). Their findings are important in that they further elucidate the nomological network for learner self-direction; in this case, that self-directed students displayed higher levels of Agreeableness, Conscientiousness, and Openness as well as lower levels of Neuroticism. These results also provide empirical support for self-direction in learning theorists who discuss the importance of such factors as creative achievements, new experience, and student participation in learning projects, intrinsic learning motivation, and self-concept (Hassan, 1982; Reynolds, 1986).

Drawing on recent developments in personality research, it is possible to extend the work of Lounsbury et al. (2009) to other personality traits that go beyond the Big Five model. Research in a number of areas has shown that validity can be enhanced above and beyond the Big Five traits by considering more narrow personality traits, which are defined as either subscales of the Big Five or as traits not encompassed by the Big Five model. For example, Lounsbury, Sundstrom, Gibson, and Loveland (2003) found that Aggression and Work Drive added substantial variance to the prediction of academic performance of middle and high school students beyond the Big Five traits. Paunonen and Nicol (2001)

found that narrow traits, such as Self-Discipline, Straightforwardness, and Modesty, added significant incremental variance beyond the Big Five when predicting 12 different criteria, including grade point average, blood donations, absenteeism, and traffic violations. Also, Paunonen and Ashton (Paunonen & Ashton, 2001) found that the NEO Personality Inventory (NEO PI-R; Costa & McCrae, 1997) Conscientiousness-related subscales of Achievement, Self-Discipline, Competence, and Dutifulness as well as the Openness-related subscale of Ideas added significantly to the prediction of collegiate GPA above and beyond scores on the Jackson Personality Inventory (JPI-R) (Jackson, 1996) Conscientiousness scale.

Significance of the Study

As noted in the problem statement, the dearth of empirical research based on established models, has slowed the development of a comprehensive model of self-direction in learning. The facts that there are few scales to measure the personality characteristics of learner self-directedness and that the most widely used instrument, the SDLRS, has not been updated since the 1970's, encourage further development in this area.

The significance of this dissertation is to add empirical evidence to support the body of work on self-direction in learning to work toward a better understanding of the relationship between personality traits and learner self-direction. While there has been much scholarly work on the area of personality in relation to self-direction, there are few quantitative studies that try and pinpoint the connection, particularly with regard to traits. There is a substantial body of empirical research supporting the idea that narrow

personality traits can add significant, incremental validity to the Big Five personality traits in some settings and populations in predicting complex, real-world criteria including learner self-direction.

The instrument used in this study, The Resource Associate Transition to College scale (RATTC; Lounsbury & Gibson, 2010), was developed to measure personological variables and has been found to support the connection between learner self-direction and personality (Kirwan, et al., 2010; Lounsbury, Levy, Leong, & Gibson, 2007; Lounsbury, Levy, et al., 2009). The present study builds upon previous results, takes a closer look at the relationship between learner self-direction and narrow traits through more stringent statistical analyses, and attempts to expand the nomothetic span of learner self-direction. In practice, teachers with a better understanding of internal characteristics (such as openness to new methods and ideas) should be better able to foster self-directed learning with a learner-centered approach—focusing on the needs and preferences of the individuals.

Delimitations of the Study

The following delimitations are noted for this study:

1. The sample was drawn from the population of undergraduate and graduate students attending a large, southeast, public institution and, as such, the research findings are applicable to learner self-direction in formal educational settings.
2. The majority of students were drawn from students enrolled in undergraduate psychology courses.

Limitations of the Study

There are two primary limitations of the current study that should be acknowledged. First, this study was limited to a four-month interval in time in a single geographic area at a large, public university, leaving open the question of generalizability to other time periods, geographic areas, and types of universities. Second, most of the study participants were lower-level students; thus, it is not possible to know if the results would generalize to samples of primarily upper-level or graduate students.

Definitions

The Personal Responsibility Orientation (PRO) model of self-direction in learning is Brockett and Hiemstra's (1991) conceptual model, which describes the relationship between self-direction the external teaching and learning processes and the internal processes of the individual learner. For the purposes of this dissertation, the three components of the PRO model are defined as follows:

Self-direction in learning: the overarching concept that includes both internal and external processes of self-directed learning.

Self-directed learning: the external teaching and learning processes including planning, implementation, assessment, and evaluation of learning.

Learner self-direction: the internal beliefs, attitudes, characteristics, and traits of individual learners that predisposed them toward taking primary responsibility for their learning.

The Big Five traits used in this dissertation are defined as:

Agreeableness-being agreeable, participative, helpful, cooperative, and inclined to interact with others harmoniously.

Conscientiousness-being conscientious, reliable, trustworthy, orderly, and rule-following.

Emotional Stability (the inverse of Neuroticism)-overall level of adjustment and emotional resilience in the face of stress and pressure. This is conceptualized as the inverse of neuroticism.

Extraversion-tendency to be sociable, outgoing, gregarious, warmhearted, expressive, and talkative.

Openness-receptivity and openness to change, innovation, new experience, and learning.

The narrow traits investigated in this dissertation are defined as:

Optimism-having an optimistic, hopeful outlook concerning prospects, people, and the future, even in the face of difficulty and adversity as well as a tendency to minimize problems and persist in the face of setbacks.

Work Drive-being hard-working, industrious, and inclined to put in long hours and much time and effort to reach goals and achieve at a high level.

There are many conceptualizations of what makes one an adult. It is important to clearly define what an "adult" is. For the purposes here, adults are study participants who are 18 years of age and older.

Outline of the Study

Chapter 1 of the dissertation presented the introduction and statement of problem, the purpose of the study, the significance of the study, research questions, delimitations, limitations, definitions, and the outline of the study. Chapter 2 will present a review of the Five Factor Model of personality, the Bandwidth-Fidelity dilemma, and learner self-direction. Chapter 3 describes the population and sample, instrumentation, procedure, and data analysis. Chapter 4 presents the results and statistical analyses. Chapter 5 provides a detailed discussion of the conclusions of the study.

Chapter 2

Literature Review

Personality is commonly defined as a relatively complex set of traits that influence behavior across time and situation (Graziano & Eisenberg, 1997; Zimbardo & Gerrig, 1996). There has long been a debate in psychology as to whether behavior is determined by situational/environmental factors or by individual factors (a behaviorist view), or whether individual factors, such as personality, determine behavior. The situational viewpoint fails to explain behaviorally consistent inclinations many people exhibit. For example, some people are more outgoing than others no matter the setting. Though it is unclear what the exact relationship is between the environment and personality, several theories have addressed how the developmental environment influences personality.

The purpose of the present study was to investigate the relationship between learner self-direction and other personality traits of college students when the traits represented by the five-factor model of personality are differentiated from narrow personality traits. Chapter 1 included an introduction, purpose, and statement of the problem for this study. Also included were the research objectives, delimitations, limitations, and relevant definitions.

Chapter 2 is a review of the literature pertinent to the purpose of the study. This chapter is presented in four sections. Section one discusses early conceptualizations of personality in the early 1900's. The second section describes the five factor model of personality. Section three describes the bandwidth-fidelity dilemma (Cronbach & Gleser, 1965) which characterizes two dimensions of a given trait. Bandwidth refers to the

complexity of a trait, and fidelity describes its precision. Section four describes self-directed learning. The final section looks at personality and learner self-direction which may help to illuminate their relationship. A conclusion closes the chapter.

Early Conceptualizations of Personality

Systematic research on personality began in the early 1900's. Much of the early work was done by Freud, Adler, and Jung. Freud discussed personality as being derived from inner psychic forces and developed the psychoanalytic method to study the unconscious from a clinical standpoint (Hogan & Roberts, 1996). To Freud (1924), personality is made up of three major components: the *id,* the *ego,* and the *superego*. Although the three components each have their own characteristics, human behavior is a result of the interaction between them (Freud, 1924).

Adler (1927) was a psychoanalyst who developed his theories based on Freud. He was more positive than Freud in that he saw personality as being valuable to the individual but was still motivated by feelings of inferiority. He reluctantly developed a typology of personality types because he wanted to offer provisional descriptions without losing sight of individual differences.

Jung based his model of personality on the work of Freud. He also looked at personality from a developmental perspective (Hogan & Roberts, 1996). Like Freud, he had a somewhat negative look at individuals and personality. He added an additional structure of a collective unconscious: a universal set of tendencies innate to all humans. Jung (1927) focused on opposing personality traits. For example, a person is extroverted,

oriented to the outside world, or introverted, oriented toward subjective experiences. Finding a balance is the key to one's mental health.

Jung (1954) believed that people tend to be more extroverted in their younger years due to obligations of family and social roles. He thought that people become more introverted around 40 when those needs and roles diminish. Adulthood is when a person looks back and devotes attention to them self-accepting their diminished capacity and increasing number of losses. Neugarten (1968) identified the middle years as being around 50 rather than 40 but agrees that this is a period of introspection and the tendency for a person to turn into one's self and away from the outside world.

The Myers-Briggs Type Indicator (MBTI) (Myers, McCaulley, Quenk, & Hammer, 1998), one of the most widely used personality inventories, is based on Jung's personality typology. The test is based on the idea that personality develops early in life and remains relatively stable throughout the lifespan. In a meta-analysis by Roberts and DelVecchio (2000), several longitudinal studies seem to support the claim that personality remains stable, particularly after the age of 50. However, none of the research in that analysis included observations from birth to old age.

Allport (1937) looked to describe personality in common terms based on individual differences variables, in contrast with the major psychoanalytic theories. He compiled a list of almost 18,000 words to describe personality. Allport then used the statistical technique of factor analysis to come up with 16 personality factors. His list was eventually developed by Cattell into the 16PF personality questionnaire based on 16 factors and an additional 12 related to abnormal behaviors (R. Cattell, 1943).

Watson founded behaviorism in 1913. He posited that personality is based on the whole of a person's habits, emotions, and instincts based on the environment of society. In the famous study of Little Albert, Watson tried to explain psychoanalytic processes in terms of behavior, and what he called conditioned emotional responses to stimuli, as opposed to Freudian internal conflicts (Rilling, 2000).

Watson (1913) emphasized empirical methods as the best way to examine normal behavior (rather than abnormal) and believed that observation is only way to look at how individuals differ. He was strongly opposed to the ideas of Titchner and introspection because he believed it was too subjective and unquantifiable (Rilling, 2000). Consequently, in the field of psychology, it became widely popular to use empirical methods to study personality.

Maslow studied personality in terms of a pyramid of needs. He believed that personality developed through a transition through the pyramid from basic physical needs to more complex psychological needs. Maslow saw personality as the development of a person's "self-actualization" in the process of meeting all of their needs (Maslow, 1970).

In the late 1960's, a main emphasis of personality research, led by the work of Cattell, and based on the work of Jung, focused on individual difference variables. Cattell (1966) emphasized common traits as important determinants of behavior and he proposed that tests could be used to measure individual differences in the degree of those traits. He allowed for unique traits but focused on traits that are common to all. He proposed that there were what he called *second-order* traits under which other traits could be contained.

Cattell eventually decided on 16 second-order common traits and developed the 16PF to measure personality (R. Cattell, Eber, & Tatsuoka, 1970).

Eysenck, like Cattell, supported empirical research as the way to study personality. He agreed that personality should be described in terms of a small number of common traits. Eysenck (1947) used the statistical technique of factor analysis to determine his theoretical personality dimensions in a small number of factors.

Eysenck (1981) identified three dichotomous factors that everyone possesses at varying degrees. He called the three *extroversion-introversion; neuroticism-stability;* and *psychoticism-superego.* Eysenck's three-factor model would be eventually replaced with the five-factor model of personality that is common today, using his *extroversion* and *neuroticism* factors.

Trait theories of personality lost favor for several years in American psychology. Social psychology, with its emphasis on environmental influences on behavior, dominated over personality research until the 1960's. Hogan and Roberts (2001) suggested three reasons why there was a change in personality research: 1) There was much disagreement in conceptual theories of personality; 2) there was disagreement as to the purpose of personality assessment; and 3) there was disagreement as to what should be measured.

Rotter became the first opponent of traits as the main determinants of behavior. He argued that situational variables are the most powerful determinants of behavior (1966). Like Cattell and Eysenck, Rotter did believe in individual differences but he equated that to environmental influences not to personal variables.

Mischel was a student of Rotter and expanded on his ideas. He argued that affect and cognition variables were more important, and accounted for more variance, than traits in influencing behavior (Mischel & Shoda, 1994). In *Personality and Assessment*, Mischel (1968) aggressively attacked studies such as those by Eysenck saying that they did not take situations into account. After reviewing several studies, he found little consistency in people's behavior across different situations. Mischel believed that people acted differently in different situations and wondered what personality tests really tell us. He stated that up to 90% of differences in people's behavior could not be accounted for by personality tests.

Trait theories became prominent in the 1980's largely due to the work of industrial/organizational psychologists (Hogan & Roberts, 2001). Costa and McCrae (1985) revived interest in the study of personality with the introduction of a five-factor taxonomy. Personality traits were being looked at in relation to workplace needs such as hiring and promotion selections. The five-factor model (the Big Five) became the dominant theory of normal personality (Costa & McCrae, 1988; Digman & Inouye, 1986; John, 1990; McCrae & Costa, 1987). Digman (1990) is often credited for promoting that the five-factor model be used as the unifying model for personality research. The five-factor model suggests there are five independent factors of personality most commonly labeled: *openness, conscientiousness, extroversion, agreeableness,* and *neuroticism* (often referred to by the acronym OCEAN). The Big Five have become the most researched area of personality to date.

Major Personality Constructs: The Five Factor Model

Personality continues to be one of the most researched areas in the field of psychology. The most commonly used measure of personality is the five-factor model. The five-factor model (often called the Big Five) has been found to be a robust and broad measure of normal personality (Tokar, et al., 1998). Numerous studies have verified the factor structure and construct validity of the Big Five constructs (*openness, conscientiousness, extraversion, agreeableness, and neuroticism*) (Costa & McCrae, 1994).

Much of the psychometric study of personality comes from the work of Allport and Cattell. The five factor model was developed from their work. Allport (1937) suggested that personality could be described in common terms, in contrast to the popular psychoanalytic viewpoint. Allport and Odbert (1936) compiled a list of almost 18,000 words from the Webster's New International Dictionary, 1925 edition to describe personality. Cattell (1943) used factor analysis to review the list and came up with 16 personality factors, which he then developed into the 16PF (16 Personality Factors Questionnaire). This would eventually be reduced to the five factor model of personality that is most commonly used today.

There have been many different labels for the five factors since McDougall (1932) first proposed simplifying Cattell's 16 factor model. The Big Five are commonly labeled *openness, conscientiousness, extraversion, agreeableness, and neuroticism* (Norman, 1963). McDougall (1932) listed them as *character, intellect, temperament, disposition, and temper.*

Several years later there was a renewed interest in looking at the five-factor model. Tupes and Christal (1961) analyzed research from the U.S. Air Force on the usefulness of personality measures for employee selection. They analyzed findings from several studies and found five replicable factors. Norman (1963) looked to simplify Cattell's 16 personality factors into a more parsimonious model. However, personality research was not as prominent as social psychology at that time and would not be further developed for another 30 years.

Digman (1990) popularized the five-factor model of personality structure through reanalysis of earlier research. He gave detailed descriptions and specific references to support each factor. Digman discovered that many different names were used for previous conceptions of the five-factor model. For example, Eysenck's definition of *extroversion* is related to the factors of other researchers, such as Tellegen's (1985) *positive emotionality*; Norman's (1963) *surgency*; and Peabody and Goldberg's (1989) *power*. Similarly, Tupes and Christal suggest that *agreeableness* is related to Fiske (1949)'s *conformity*; Hogan (1986)'s *likeability*; and Digman (1990)'s *friendly compliance*. The big five are briefly described in the following paragraphs.

Openness to experience represents individuals' tendencies to be inquiring, imaginative, creative, and having broad interests (Digman, 1990; McCrae & Costa, 1985, 1987). Individuals with higher scores in openness tend to be more appreciative of art, beauty, curiosity, imagination, and variety of experience (McCrae & Costa, 1997); whereas individuals with lower scores on openness tend to be more traditional, conventional, straightforward, and unambiguous (McCrae & Costa, 1997).

Conscientiousness represents a tendency to be self-disciplined, dutiful, neat, orderly, structured, and achievement-oriented (Costa & McCrae, 1992). Individuals who score high on conscientiousness tend to be more careful, organized, and deliberate in their actions. People who score lower tend to be, disorganized, error-prone, undisciplined, careless, and expedient.

Extraversion represents a tendency to be energetic, outgoing, expressive, affiliative, assertive, and inclined to seek out the company of others. Individuals who score high on extraversion tend to be enthusiastic, positive, warm, social, and talkative (Costa & McCrae, 1992; D. Watson & Clark, 1997). In contrast, individuals who score lower tend to be quiet, reserved, aloof, reticent, withdrawn, and less involved in the social world.

Agreeableness represents a tendency to be trusting, nurturing, cooperative, compassionate, and kind (Graziano & Eisenberg, 1997). Agreeable individuals tend to be more considerate, accommodating, generous, trusting, altruistic, and pleasant (Costa & McCrae, 1992). On the other hand, individuals who score low on agreeableness tend to be critical cynical, suspicious, skeptical, argumentative, and divisive. They are typically not likely to go out of their way to help other people (Seibert & Kramer, 2001).

Neuroticism (often referred to by its inverse emotional stability) represents the tendency to experience negative emotions such as anger, depression, anxiety, moodiness, and a generally negative affect (Costa & McCrae, 1992). Emotionally stable individuals tend to be calmer, composed, relaxed, poised, equanimous, and better able to successfully adapt under stressful circumstances (Judge & Bono, 2000).

The five factor's broad descriptions of personality make it very useful. As discussed by Digman (1990), the five factor model represents a hierarchy of personality traits under the broad structure. This idea has been widely accepted and validated by many researchers (cf. Digman, 1990; Goldberg, 1992; Wiggins & Trapnell, 1997).

However, several researchers complain that the five factor model is too broad, simplistic, and does not adequately analyze personality. Critics suggest that the five factors do not adequately address the wide range of personality variables and that much of the variance cannot be accounted for (Paunonen & Jackson, 2000). McAdams (1992) expressed concern that the five factors do not address the cause of behavior and do not account for deviations in behavior from the norm. It may be necessary to investigate narrow traits to look at how personality factors are related to the wide spectrum of personality variables.

The Bandwidth-fidelity Dilemma

The biggest criticism of the Big Five model is that it can lead to inaccurate and meaningless results. When looking at many variables, the lack of descriptive precision of broad factors can result in findings that are not significant or valid. Researchers who want to address specific criteria often choose to use narrow traits in their studies. However, the narrower the definition of a personality trait the more limited its application (Ashton, 1998). Narrow traits are more specific and may correct for what is commonly known as the bandwidth-fidelity dilemma (Cronbach & Gleser, 1965). Bandwidth of a trait describes the level of complexity, and fidelity refers to the quality of precision of the description. Narrower descriptors are more precise and allow for individual uniqueness. It

has been shown that narrow traits can yield higher predictability (Ashton, 1998; Borman & Penner, 2001; Moon, Hollenbeck, Humphrey, & Maue, 2003; Paunonen, 1998; Paunonen & Ashton, 2001; Paunonen & Nicol, 2001).

Regarding personality structure, traits are typically seen as hierarchical in nature, in that some traits fall into broader categories. Eysenck (1947) was the first person who really looked at a hierarchical structure of personality variables. The terms *trait* and *factor* are often used interchangeably in personality research**.** Several theorists postulate there are factors ranging from Eysenck's three types to Cattell's 16 personality factors. But the most commonly used is the five factor model (the Big Five).

Despite its shortcomings, the five-factor model is the most comprehensive and parsimonious one available to study personality (Goldberg, 1992). However, researchers that want to address specific criteria often choose to use narrow traits in their studies. The Big Five factors are often used as the benchmark and considered broad traits; factors with less breadth are considered narrow. The idea is that traits can be broad or narrow in scale of their descriptive ability.

Using broad or narrow factors to describe personality is considered a trade-off between the precision of the measurement of a single trait versus measuring a set of broad characteristics (Murphy, 1993)**.** The bandwidth-fidelity dilemma is that the descriptive ability of a factor is reduced with more general behavior. The more broadly one defines a factor, the less applicable the construct is on the individual level. On the other hand, the more narrowly defined the construct, the lower the generalizability. There is an inverse

relationship between the two: as fidelity increases bandwidth decreases, and vice versa (Shannon & Weaver, 1949).

Ones and Viswesvaran (1996) discuss the bandwidth-fidelity dilemma in terms of broad constructs versus the precise measurement of narrowly defined constructs. Hogan and Roberts (1996) illustrate this dilemma in measurement by comparing binoculars to a microscope. Binoculars allow you to see the bigger picture but you miss the details. With a microscope, you can zoom in on the precise details but lose the broader patterns.

Cronbach (1960) took a more empirical approach to investigate the relationship between bandwidth and fidelity presented in Shannon and Weaver's 1949 article and outlined four concepts regarding the relationship:

1. Increasing the fidelity in measurement would decrease its bandwidth.
2. Information from broad bandwidths may lead to unreliable and insignificant results. Small bandwidths may be too precise to be practical except in very specific situations.
3. Bandwidth must be increased when multiple outcomes are important but it will lower precision.
4. It is important to match criteria to appropriate predictors in scope as well as precision.

Each of Cronbach's four concepts illustrates the need to use appropriate measures that match the research question. According to Cronbach, the dilemma can be addressed in terms of balance between the measures.

It is also possible that researchers can use a multi-dimensional approach by combining narrow traits and looking at the predictive validity of their interaction. Using both broad and narrow descriptors in determining predictive validity may offset the trade-off of using either one alone. For example, Moon, Hollenbeck, Humphrey, and Maue (2003) found that individual factors have a high level of predictability alone; whereas predictive validity decreased when combined into broader factors.

An important point about the bandwidth-fidelity dilemma is that even if a particular criterion is strongly associated with a broad trait, the scope of the trait does not lead to an understanding of the conditions surrounding the relationship. A researcher may be able to determine which relationships are due to one narrow factor or a combination of narrow factors under a broader trait by looking at both (Paunonen, Rothstein, & Jackson, 1999)**.** Narrow traits that are included within the broader dimension may allow for more significant findings owing to their corrective nature on the bandwidth fidelity. Researchers who use broad and narrow factors may be able to get a better understanding of the predictive factors and contributions of narrow traits.

The following two narrow traits will be considered to account for additional variance in self-directed learning above and beyond that of the Big Five. The descriptions of the narrow traits are based on the construct specifications of Lounsbury, Saudargas, and Gibson (2004):

Optimism: having an optimistic, hopeful outlook concerning prospects, people, and the future, even in the face of difficulty and adversity as well as a tendency to minimize problems and persist in the face of setbacks.

Work Drive: being hard-working, industrious, and inclined to put in long hours and much time and effort to reach goals and achieve at a high level.

Self-Directed Learning

Self-directed learning is one of the largest areas of discussion and research in the field of adult education (Brockett & Hiemstra, 1991; Long & Redding, 1991). Much of the current work in self-directed learning can be traced back to the works of Houle, Tough, and Knowles. Houle's (1961) *The Inquiring Mind* has often been cited as one of the earliest and most influential contributions to self-directed learning (Brockett & Donaghy, 2005). Houle (1961, 1993) concluded, based on interviews with 22 adult learners, that adults approach learning from one of three different directions: a) *goal oriented* where learning is a means to an end, b) *activity oriented* where learning is pursued as an opportunity for social interaction, and c) *learning oriented* where adults engage in education for the sake of learning itself.

Tough first developed a description of self-directed learning (he referred to as "self-planned" learning) as a form of study building on the work of Houle (Merriam, Caffarella, & Baumgartner, 2007, p. 105). He focused on Houle's *learning oriented* aspect of adult learning. In a study in 1970, Tough and his colleagues interviewed 66 adults to examine their self-planned learning projects. In *The Adult's Learning Projects* Tough (1971) reported that the findings from the study revealed that adults, on average, engage in eight deliberate learning projects a year. Knowles acknowledged that Tough's work influenced his writings on self-directed learning (Brockett & Donaghy, 2005).

Knowles expanded the concept of learner self-direction to include adults in formal learning situations (Holt, 2011). In his book *Self-Directed Learning*, Knowles (1975) defined learner self-direction as:

> a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes. (p. 18)

Subsequent research on self-directed learning has been built upon the works of Houle, Tough, and Knowles. Brockett and Hiemstra (1991) noted that several terms have been used interchangeably with self-directed learning such as *self-planned learning, autonomous learning, self-teaching, independent study,* and *distance learning*. In 2004, Hiemstra (2004) identified as many as 258 terms that have been found in adult learning literature to describe self-directed learning.

There are many ideas about what the goals of self-directed learning should be (e.g., Brockett & Hiemstra, 1991; Brookfield, 1993; Knowles, 1975; Tough, 1971), but the general idea is that the learner will take the lead in the learning process. Garrison (1997) points out that self-directed learners have a greater understanding of their responsibility for making learning meaningful and they are able to evaluate themselves. While there are many conceptualizations and models for understanding self-directed learning, many of them are less comprehensive and directed towards specific situations. It is important to be

able to distinguish among learner characteristics, the learning environment/social context, and the process of self-directed learning. For this reason, the Personal Responsibility Orientation Model (Brockett & Hiemstra, 1991) was selected for the current study.

The Personal Responsibility Orientation (PRO) Model. Brocket and Hiemstra (1991) developed a model to distinguish between the different aspects of self-direction in learning. The Personal Responsibility Orientation (PRO) model divides self-direction in learning into two distinct but related components: an instructional process during which the learner assumes primary responsibility for the planning, implementing, and evaluating the learning process (self-directed learning); and personality characteristics centering on the learner's preferences or desires for assuming responsibility for learning (learner self-direction) (p. 26). Self-direction in learning involves both components intertwined within the learner's social context as he or she works towards personal responsibility for his or her learning.

Measures of Self-Directed Learning

Research regarding the characteristics of self-directed learners is somewhat fragmented and piecemeal. Several instruments have been developed to try and identify aspects of self-direction. Stockdale (2003) identified 16 instruments that measure some aspect of self-directed learning. While there has been discussion of traits in relation to learner self-direction (Brockett & Hiemstra, 1991; Oliveira, Silva, Guglielmino, & Guglielmino, 2010), and there is quite a bit of empirical investigation of self-directed learning, the research has predominately focused on readiness for learning.

There is a fair amount of literature describing studies which include cognate constructs in relation to self-directed learning readiness such as self-regulation and resilience (Nota, Salvatore, & Zimmerman, 2004), performance, creativity, and problem-solving (Oliveira, et al., 2010); internal locus of control (Gardner & Helmes, 1999; Skaggs, 1981); life satisfaction of elderly individuals (Brockett, 1985; Gardner & Helmes, 1999); lower levels of dogmatism (Long & Agyekum, 1983); affective organizational commitment (Cho & Kwon, 2005); cognitive interest (Reynolds, 1986); flexibility and open-mindedness (Oddi, 1987), conscientiousness (Oliveira & Simões, 2006).

Two studies systematically examined self-directed learning readiness in relation to the four Myers–Briggs Type Indicator dimensions, with higher levels of self-directed learning found to be related to Extraversion and Intuition in one study (Leitsch & Van Hove, 1998) and Intuition and Judging in the other study (Johnson, et al., 1988). However, Lounsbury et al. (2009) point out that "the Myers–Briggs is a four-dimension personality inventory that does not explicitly measure some important personality constructs such as conscientiousness, openness, and emotional stability" (p. 412). Learner self-direction can be better assessed as a personality trait in terms of its relations with more comprehensive and recognized personality inventories, such as the Big Five (De Raad, 2000) and 16 PF (H. Cattell & Mead, 2008).

There have been several instruments developed and employed to measure self-directed learning readiness and other variables. Guglielmino's (1977) *Self-Directed Learning Readiness Scale* and Oddi's (1984) *Continuing Learning Inventory* are the two most widely used measures of characteristics of self-directed learners. More recently,

Stockdale's (2003) *Personal Responsibility Orientation to Self-Direction in Learning Scale* is gaining acceptance as a reliable and valid measure which partially measures similar characteristics of learners. Because these three instruments are widely accepted, they will be further discussed here.

Self-Directed Learning Readiness Scale. The *Self-Directed Learning Readiness Scale (SDLRS)*, also known as the *Learning Preference Assessment (LPA)*, was developed to measure attitudes, skills, and characteristics of learners that influence an individual's level of readiness to manage his or her own learning (Guglielmino, 1977). The scale uses a 58-item 5-point Likert scale measuring eight factors: openness to learning opportunities, self-concept as an effective learner, initiative and independence in learning, informed acceptance of responsibility for one's learning, love of learning, creativity, positive orientation to the future, and ability to use basic study and problem solving skills. It is often cited as the most widely used instrument used to measure self-directed learning. To date, the SDLRS/LPA has been translated into 19 languages, been used by more than 500 organizations, has been taken by more than 75,000 individuals, and been used in more than 90 dissertations (Guglielmino & Guglielmino, 2012)

Despite the instrument's widespread use, there are several issues that surround the use of the SDLRS in measuring self-directed learning. There continues to be a debate among scholars, that began in the 1980's (e.g., Bonham, 1991; Brockett, 1985; Field, 1989), as to the validity of the instrument (e.g., Baveye, 2003; Hoban, Lawson, Mazmanian, Best, & Seibel, 2005). Another problem with the SDLRS is that, despite the extensive use and translation of the instrument, it has not been significantly updated since

its inception (Hoban, et al., 2005). Lastly, the instrument is costly for researchers to use especially with large sample sizes.

Oddi Continuing Learning Inventory. The *Oddi Continuing Learning Inventory (OCLI)* was developed to identify self-directed continuing learners (Oddi, 1987). It is a 24-item self-report instrument constructed around three theoretical formulations "describing the motivational, affective, and cognitive attributes of the self-directed continuing learner's personality" (Oddi, Ellis, & Roberson, 1990, p.139). The three dimensions of the scale are: Proactive Drive versus Reactive Drive, Commitment to Learning versus Apathy/Aversion to Learning, and Cognitive Openness versus Defensiveness (Oddi, 1984; Oddi, et al., 1990). Brockett and Hiemstra (1991) point out that Oddi (1987) developed her instrument to distinguish between the "process perspective" and the "personality perspective" which is central to the PRO model.

Personal Responsibility Orientation to Self-Direction in Learning Scale. The *Personal Responsibility Orientation to Self-Direction in Learning Scale (PRO-SDLS)* is a 25-item instrument designed to measure self-directedness in learning among graduate students (Stockdale, 2003; Stockdale & Brockett, 2011). The PRO-SDLS (Stockdale, 2003) was developed based on an operationalization of the Personal Responsibility Orientation (PRO) model developed by Brockett and Hiemstra (1991). The instrument measures two aspects of self-direction in learning: the teaching-learning transaction (TL) and learner characteristics (LC). The items for the scale were written to reflect the components of the PRO model (Brockett & Hiemstra, 1991) and defined as:

1. a teaching-learning (TL) transaction in which the learner demonstrates proactive personal responsibility for planning, implementing, and evaluating the learning process; and,
2. a learner's characteristics (LC), defined for purposes of this study, as a degree of self-efficacy and motivation that predispose one toward taking primary responsibility for learning (Stockdale, 2003, p.76).

The TL construct has two factors: learner control and initiative. Learner control was based on the PRO model and adult-learning literature. It refers to learners exhibiting control over the learning process (Stockdale, 2003). The second factor—initiative—has to do with the level to which an individual demonstrates initiative towards learning (Stockdale & Brockett, 2011).

The LC construct is composed of motivation and self-efficacy. Stockdale (2003) drew from psychology and educational psychology literature, particularly Deci and Ryan's (1985, 2000) motivation types, to describe the relationship to motivation and self-direction in learning. The self-efficacy factor was based on Bandura's (1977) social-cognitive learning theory and his definition "beliefs in one's capacities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p.3) as noted in Stockdale and Brockett (2011, p.166).

Several studies have used the PRO-SDLS in recent years. Fogerson (2005) examined self-direction in relation to learner satisfaction with online courses using the PRO-SDLS. Holt (2011) investigated self-direction and technology use in new workforce entrants. Other studies utilizing the PRO-SDLS include the study first generation college

students (Hall, 2011), self-perceived and observable self-direction in students in an online course (Gaspar, Langevin, Boyer, & Armitage, 2009), and self-direction & constructivism in programming education (Boyer, Langevin, & Gaspar, 2008).

While the three instruments outlined in this review do measure personality characteristics, none of them focus on variables that are consistent and stable over time. The most widely measured characteristic, self-directed readiness is more likely a state than a personality trait. Cattell (R. Cattell, 1943, 1966) makes a clear distinction between the two with states being characteristics that tend to vary across situations and traits as being relatively stable. From a learning perspective, Reigeluth and Stein (1983) state:

> A useful distinction in the discussion of student characteristics is trait versus state. Traits are student characteristics that are relatively constant over time…whereas states are student characteristics that tend to vary during individual learning experiences, such as level of content-specific knowledge. (p. 32)

It could be argued that characteristics such as readiness and motivation are more likely states and effects of personality characteristics, and do not accurately predict personality outside of situational circumstances. Individual differences variables—traits—therefore, might be more accurate predictors of learner self-direction over time and across situations.

In this study, the focus will be on *learner self-direction* as an individual differences variable that can be represented on a continuum from low to high, in line with Hiemstra

(1994), as something "that exists to some degree in every person and learning situation." With respect to Brockett and Hiemstra's (1991) two-dimension, self-direction in learning model; learner self-direction in this study corresponds to their learner self-direction construct as "characteristics of an individual that predispose one toward taking primary responsibility for personal learning endeavors" (p. 29). Consistent with prior conceptualizations of self-direction in learning (e.g., Brockett, 1983; Brockett & Hiemstra, 1991; Costa & Kalick, 2003), learner self-direction was conceptualized and measured as a personality trait reflecting an individual's: preference to be in charge of their learning process; ability to conceptualize, plan, implement, and evaluate their academic experience; and disposition to be goal-oriented and to work independently or in group settings with little guidance.

Personality and Learner Self-Direction: The Resource Associates Self-Directed Learning Scale

Drawing on Brockett (1983, p. 16), learner self-direction, in this study, is defined as a disposition to engage in learning activities where the learner takes responsibility for developing and carrying out learning endeavors in an autonomous manner without being guided or prompted by other people. Thus, the measure to be used in this study differs from other conceptualizations of self-directed learning in that it has been defined, developed, and validated as a personality trait, rather than an instructional method or readiness for learning scale.

There has been extensive coverage of the topic by theorists, researchers, and practitioners (e.g., Brockett & Hiemstra, 1991; Candy, 1991). However, there have been

few studies that look at self-directed learning as a personality trait. In the rationale for their study of personality and self-directed learning, Lounsbury, Levy, Park, Gibson, & Smith (2009) made three important observations: (1) personality traits may influence or provide the foundation for learner self-direction--development processes (p. 412); (2) when considered as a whole, much of the prior literature on the relationship between learner self-direction and personality traits (e.g., Johnson, et al., 1988; Leitsch & Van Hove, 1998) is fragmented and piecemeal; and (3) the Big Five model of personality represents an "organizing scheme" for understanding learner self-direction--personality trait relations. With regard to the latter point, the Big Five model of personality traits of Conscientiousness, Openness, Agreeableness, Extraversion, and Neuroticism (which will be referred to by its inverse—Emotional Stability) is widely accepted as a unified, parsimonious model of normal personality that has been validated in many different cultures and across several research settings (e.g., De Raad, 2000; Digman, 1990, 1997; Wiggins & Trapnell, 1997), with supporting studies based on many different demographic and personal characteristics of individuals (Costa & McCrae, 1994).

The results of the Lounsbury et al. (2009) study indicated that there was a significant relationship between the five-factor model of personality and learner self-direction (p. 415). Their findings are important in that they further elucidate the nomological network for learner self-direction; in this case, that self-directed students displayed higher levels of Extraversion, Conscientiousness, and Openness as well as lower levels of Neuroticism. These results also provide empirical support for learner self-direction theorists who discuss the importance of such factors as creative achievements,

new experience, student participation in learning projects, intrinsic learning motivation, and self-concept (e.g., Hassan, 1982; Reynolds, 1986).

Drawing on recent developments in personality research, it is possible to extend the work of Lounsbury et al. (2009) to other personality traits that go beyond the Big Five model. Research in a number of areas has shown that validity can be enhanced above and beyond the Big Five traits by considering more narrow personality traits, which are defined as either subscales of the Big Five or as traits not encompassed by the Big Five model. For example, Lounsbury, Sundstrom, Gibson, and Loveland (2003) found that Aggression and Work Drive added substantial variance to the prediction of academic performance of middle and high school students beyond the Big Five traits. Paunonen and Nicol (2001) found that narrow traits, such as Self-Discipline, Straightforwardness, and Modesty, added significant incremental variance beyond the Big Five when predicting 12 different criteria, including grade point average, blood donations, absenteeism, and traffic violations. Also, Paunonen and Ashton (2001) found that NEO Conscientiousness-related subscales of Achievement, Self-Discipline, Competence, and Dutifulness as well as the Openness-related subscale of Ideas added significantly to the prediction of collegiate GPA above and beyond the Jackson Personality Inventory Conscientiousness scale. Accordingly, a purpose of the present study will be to investigate whether narrow personality traits are related to learner self-direction and to see if they contribute incremental validity to the prediction of learner self-direction above and beyond the Big Five. The narrow traits to be examined are Optimism and Work Drive. These traits are not part of current Big Five taxonomies and have been found to be related to important outcome criteria for college

students including grades, satisfaction, and intention to withdraw from school (c.f., Lounsbury, Saudargas, et al., 2004; Lounsbury, Saudargas, Gibson, & Leong, 2005; Lounsbury, Sundstrom, Gibson, et al., 2003; Ridgell & Lounsbury, 2004).

Conclusion

Chapter 2 contained a brief review of the literature concerning personality, trait theories, the Bandwidth-Fidelity dilemma, and the connection to learner self-direction. Chapter 3 will present the methods used in this study including the sample, instrumentation, and procedures for data analysis. Chapter 4 presents the results and statistical data. Chapter 5 provides a detailed discussion and conclusions of the study along with the limitations and possible future directions of research.

Chapter 3

Method

This study examines the relationship between learner self-direction and other personality traits. Chapter 3 will provide an overview of the method and procedures that will be used in this study. Following are descriptions of the sample, instrumentation, data collection, and data analyses used to answer the research questions.

For this study, my focus is on *learner self-direction* as an individual differences variable that can be represented on a continuum from low to high rather than a categorical or nominal variable. With respect to Brockett and Hiemstra's (1991) two-dimension, self-direction in learning model; the learner self-direction construct in this study corresponds to their learner self-direction construct. Consistent with prior conceptualizations of self-direction in learning (e.g., Brockett, 1983; Brockett & Hiemstra, 1991; Costa & Kalick, 2003), I conceptualize and measure learner self-direction as a personality trait reflecting individuals': preference to be in charge of his or her learning process; ability to conceptualize, plan, implement, and evaluate one's academic experience; and disposition to be goal-oriented and to work independently or in group settings with little guidance.

Population and Sample

All data were obtained from an archival data source maintained by Resource Associates, Inc., which had been collecting data from a large, public southeastern U. S. state university for about 15 years. Permission was given by Resource Associates, Inc., for the use of the archival data for the proposed study with names and personal identifiers omitted from the dataset. Data from 2102 adult participants, age 18 and older, were used

for the purposes of this study. In the original data collection, researchers first obtained permission to conduct the study from the university's institutional review board. Undergraduate students enrolled in an introductory psychology course (n = 1484) and undergraduate student-mentors in a peer-mentoring program (n = 618) at a large southeastern state university were recruited to participate in this study. Of the 2102 participants in this study, 40% were male (60% female). Fifty-five percent of the participants were Freshmen; 26%, Sophomores; 14%, Juniors; and 5%, Seniors. Eighty-four percent of the participants identified themselves as Caucasian, 9%--African-American, 2 %--Hispanic, 2%--Asian, and 3%--other. The median age of participants was 18-19 years old.

After obtaining human subjects approval from the university's Institutional Review Board, participants were solicited to take a personality inventory (the RATTC described below) on-line. Upon completion of the report, each participant was provided a feedback report summarizing their personality characteristics and implications for a variety of areas related to being a student, including area of study, social life, managing stress, study habits, living situation, and using campus resources. Students in the introductory psychology course were offered extra credit for participation. Students in the Peer Mentoring program were invited to take the Personal Style Inventory as part of a training session. All data were collected between March and December of 2004.

Personality—learner self-direction relationships among college students was studied for several reasons. The college experience is regarded as providing "many opportunities for students to develop, among other things, personal and professional

identity" (Hamrick, et al., 2002, p.135). As Madison (1969) observed, college represents a unique and highly appropriate setting for studying identity. Moreover, for those individuals who go to college directly from high school, the college experience occurs during a key developmental period for identity development (Waterman, 1985, 1993), and it is regarded as playing a "critical role in identity formation" (Nakula, 2003, p.9).

Instrumentation

The personality measure used in this study was the Resource Associates' Transition to College inventory (RATTC) (Lounsbury & Gibson, 2010). The RATTC is a normal personality inventory contextualized for late adolescents (Jaffe, 1998) and adults through high school and college. It measures the Big Five Traits of Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. The RATTC also measures the narrow traits of Aggression, Career-Decidedness, Optimism, Self-Directed Learning, Sense of Identity, Tough-Mindedness, and Work Drive. Information pertaining to scale development, reliability, criterion-related validity, construct validity, and norming can be found in Kirwan, Lounsbury, & Gibson (2010), Lounsbury, Levy, Park, Gibson, & Smith (2009); Lounsbury, Tatum, et al. (2003); Lounsbury, Gibson, and Hamrick (2004); Lounsbury, Loveland et al.(2003); Lounsbury, Steel, Loveland, and Gibson (2004); Lounsbury, Gibson, Sundstrom, Wilburn, & Loveland (2003); Lounsbury, Sundstrom et al. (2003) and Lounsbury & Gibson (2010).

The Resource Associates Transition to College Inventory (RATTC) has 118 items represented by statements in which respondents are asked to express agreement or disagreement on a five-point Likert scale (1=Strongly Disagree; 2= Disagree;

3=Neutral/Undecided; 4=Agree; 5=Strongly Agree). A brief description of the personality traits measured by RATTC involved in the present study is given below (Lounsbury & Gibson, 2010, p.7):

Agreeableness - being agreeable, participative, helpful, cooperative, and inclined to interact with others harmoniously.

Conscientiousness - being conscientious, reliable, trustworthy, orderly, and rule following.

Emotional Stability **-** overall level of adjustment and emotional resilience in the face of stress and pressure (conceptualized as the inverse of neuroticism).

Extraversion - tendency to be sociable, outgoing, gregarious, warmhearted, expressive, and talkative.

Openness **-** receptivity and openness to change, innovation, new experience, and learning.

Optimism **-** having an optimistic, hopeful outlook concerning prospects, people, and the future, even in the face of difficulty and adversity as well as a tendency to minimize problems and persist in the face of setbacks.

Self-Directed Learning **-** Inclination to learn new materials and find answers to questions on one's own rather than relying on a teacher to provide answers; initiating and following through on learning without being required to for a course or prompted to by a teacher.

Work Drive **-** being hard-working, industrious, and inclined to put in long hours and much time and effort to reach goals and achieve at a high level.

The RATTC Self-Directed Learning Scale

The Resource Associates Transition to College Self-Directed Learning scale is a 10-item scale with responses made on a five-point Likert scale: 1=Strongly Disagree; 2=Disagree; 3=Neutral/Undecided; 4=Agree; 5=Strongly Agree. It was developed as part of the larger Resource Associates Transitions to College Inventory, a system for measuring personality traits for adolescents and adults (Lounsbury & Gibson, 2006). The theoretical framework for the Self-Directed Learning construct was based "directly on Brockett's (1983) conceptualization that "self-directed learning refers to activities where primary responsibility for planning, carrying out, and evaluating a learning endeavor is assumed by the individual learner" (p. 16). Table 1 contains the 10-items comprising the RATTC Self-Directed Learning scale.

Table 1

The RATTC Self-Directed Learning Scale

Number	Question
1.	I regularly learn things on my own outside of class.
2.	I am very good at finding out answers on my own for things that the teacher does not explain in class.
3.	If there is something I don't understand in a class, I always find a way to learn it on my own.
4.	I am good at finding the right resources to help me do well in school.
5.	I view self-directed learning based on my own initiative as very important for success in school and in my future career.
6.	I set my own goals for what I will learn.
7.	I like to be in charge of what I learn and when I learn it.
8.	If there is something I need to learn, I find a way to do so right away.
9.	I am better at learning things on my own than most students.
10.	I am very motivated to learn on my own without having to rely on other people.

(Lounsbury, Levy, et al., 2009)

Investigation of the Reliability and Validity of the RATTC

The RATTC has been used in many research studies including peer-reviewed journals (e.g., Lounsbury, et al., 2007; Lounsbury, Richardson, Saudargas, & Levy, 2008; Lounsbury, Smith, Levy, Leong, & Gibson, 2009), technical reports, and several dissertations (e.g., Logue, 2005; Rogers, 2005; Stowell, 2005). In a recent publication, Lounsbury et al. (2009) investigated the reliability and validity of the RATTC including the measure of self-directed learning. Reliability refers to an instruments' repeatability and consistency of measurement. Internal consistency reliability for the RATTC was assessed using the internal consistency reliability coefficient (Cronbach's alpha). In the middle and high school samples, the coefficient alpha for the Self-Directed Learning measure =.87; in the college samples = .84. Coefficient alpha greater than .80 are generally considered desirable (Cronbach & Shavelson, 2004; George, 2011). Complete reliability coefficient information for the RATTC can be seen in Table 2.

Table 2

Internal Consistency Reliability Coefficients for the RATTC

Scale	Number of Items	Coefficient Alpha
Agreeableness	9	.77
Conscientiousness	10	.84
Neuroticism	9	.86
Extraversion	8	.83
Openness	11	.80
Optimism	7	.85
Sense of Identity	8	.85
Tough Mindedness	12	.78
Work Drive	9	.81

(Lounsbury & Gibson, 2010; Lounsbury, et al., 2007; Lounsbury, Levy, et al., 2009; Lounsbury, Saudargas, et al., 2004)

Confirmatory Factor Analysis. Confirmatory factor analysis was performed to assess the unidimensional factor structure of the RATTC self-directed learning scale (Lounsbury, Levy, et al., 2009). A categorical confirmatory factor analysis (CCFA) was employed by Resource Associates with a large sample of 4125 first-year university students obtained as part of Monster.com's *Making College Count* program for helping students negotiate the transition to college (Monster.com, 2009). The total sample was randomly divided into a main sample (n=2063) and a holdout, validation sample (n=2062). A CCFA was used because it is a factor analytic approach that accounts for the non-normality of discrete data that renders traditional confirmatory factor analysis methods inappropriate (cf., Hill et al., 2007). LISREL 8.80 (Joreskog & Sorbom, 2006) was used to conduct the CCFA with weighted least-squares used for parameter estimation. Polychoric correlations among the items were obtained using listwise deletion to eliminate missing data.

In the validation studies of the RATTC, the one-factor, self-directed learning model appeared to be a good fit for both the main and holdout samples (Lounsbury, Levy, et al., 2009). Three different fit indices were all above .90 in both the main and holdout samples—including the goodness of fit index=.987 in both samples; the non-normed fit index=.905 in both samples; and the comparative fit index=.924 in both samples. In addition, all 10 of the self-directed learning items had significant loadings (t-value $\geq$2.0) on the self-directed learning latent variable, with standardized parameter estimates ranging from .596 to .847. Accordingly, it was considered that the one-factor model of the self-directed learning scale was confirmed. The RATTC was found to be highly correlated (r =

.82, $p < .01$) with Guglielmino's Self-Directed Learning Readiness scale (SDLRS) (Lounsbury, Levy, et al., 2009).

Criterion-related validity. Validity is often demonstrated by a correspondence between scores on an instrument and logically related outcomes, criteria, and other measures. There have been numerous validation studies on the measures in the RATTC. The RATTC Self-Directed Learning scale has been found to be an internally consistent measure that is positively related to college and general student life satisfaction (Lounsbury, Saudargas, et al., 2004), collegiate academic success (Ridgell & Lounsbury, 2004), career and job satisfaction (Williamson, Pemberton, & Lounsbury, 2008), sense of identity (Lounsbury, et al., 2007); and negatively related to intention to withdraw from college (Lounsbury, Saudargas, et al., 2004).

Construct validity. Construct validity for the RATTC scales was explored by administering them in conjunction with other well established measures of normal personality (Lounsbury & Gibson, 2010). The RATTC achieves convergent validity with other widely used personality inventories such as the NEO-PI-R (Costa & McCrae, 1997), 16PF (H. Cattell & Mead, 2008), and Myers-Briggs Temperament Inventory (MBTI) (Myers, et al., 1998). Findings from the above studies demonstrate that the RATTC constructs are internally consistent and display generally high convergence with common traits on other, well-established personality inventories, including the 16 PF, NEO-PI-R, and the Myers-Briggs Type Inventory (e.g., the RATTC measure of Extraversion correlates .77 with NEO-PI-R measure of Extraversion). Moreover, the Big Five measures of the RATTC significantly predict collegiate academic performance and withdrawal intention

(Lounsbury, Sundstrom, Gibson, et al., 2003; Ridgell & Lounsbury, 2004). The RATTC has been found to be related to job performance, job satisfaction, and career satisfaction in a wide variety of occupations in many different business and industry settings (Lounsbury & Gibson, 2010).

The RATTC Self-Directed Learning scale was highly positively correlated with Guglielmino's Self-Directed Learning Readiness Scale ($r = .82$, $p < .01$) which indicates substantial convergence between these two measures (Lounsbury et al, 2009). This is a nearly perfect correlation when corrected for attenuation.

Procedure

I contacted the staff at Resource Associates for permission to use data collected previously from samples that included the Resource Associates Self-Directed Learning scale. Permission was granted by Dr. Lucy Gibson for the use of a sample of 2102 participants based on the previous criteria. Data were given to me in a file that did not include any personal identifiers (see Appendix A). See page 41 of this dissertation for details of the participants and data collection.

Hypotheses and Data Analysis

Data analysis includes descriptive statistics, correlational analysis, and multiple regression analysis using the SPSS statistical package. In particular, part correlations (also known as semi-partial correlations) were analyzed to investigate the unique contribution of individual variables.

One of the problems that come up in multiple regression is that of defining the contribution of each independent variable to the multiple correlation. There are several

ways of looking ways of addressing this question how much a variable contributes to the model. One answer is provided by the part correlation *sr* and its square, sr^2.

Part correlations and squared part correlations indicate the unique variance of each independent variable in relation to the dependent variable when controlling for the unique and shared variance of the other independent variables (Cohen, Cohen, West, & Aiken, 2003). The squared part correlation for a variable represents how much R^2 will decrease if that variable is removed from the regression equation (Pedhazur, 1997). In other words, the squared part correlation represents the proportion of variance of the dependent variable accounted for by a given independent variable above and beyond other variables.

The hypotheses and research questions that guide this study are:

Hypothesis 1: Openness will be uniquely, positively related to learner self-direction after controlling for the other Big Five and narrow traits.

Hypothesis 1a: The part correlation for Openness and learner self-direction will be higher than all the corresponding part correlations for the other traits except Work Drive.

Hypothesis 2: Conscientiousness will be uniquely, positively related to learner self-direction after controlling for the other Big Five and narrow traits.

Hypothesis 3: Emotional Stability will be uniquely, positively related to learner self-direction after controlling for the other Big Five and narrow traits.

Hypothesis 4: Agreeableness will be uniquely, positively related to learner self-direction after controlling for the other Big Five and narrow traits.

Research question 1: What is the relationship between Extraversion and Learner self-direction?

Hypothesis 5: Work Drive will be uniquely, positively related to learner self-direction after controlling for the other Big Five and narrow traits.

Hypothesis 5a: The part correlation for Work Drive and learner self-direction will be higher than all the corresponding part correlations for the other traits.

Hypothesis 6: Optimism will be uniquely, positively related to learner self-direction after controlling for the other Big Five and narrow traits.

Conclusion

Chapter III has outlined the method for the study. The results pertain to the relationship between learner self-direction and key personality traits of students in higher education. Use of the Resource Associates Transition to College instrument provided the data necessary for an in-depth analysis.

Chapter 4

Results

Chapter 3 described the participants, procedures, instrumentation, and analysis tools used in this dissertation. Chapter 4 will detail the results of the statistical analysis including addressing each research question and hypothesis.

Pearson product-moment correlation coefficients were calculated between learner self-direction and the Big Five traits as well as narrow traits of Work Drive and Optimism. Descriptive statistics and intercorrelations among the study variables are displayed in Table 3. As can be seen in Table 4, all of the Big Five personality traits are correlated significantly and positively with learner self-direction, except for Extraversion. Specifically, in descending order of magnitude, the correlations with Self-Directed Learning were: Openness ($r = .43$, $p < .01$), Agreeableness ($r = .21$, $p < .01$), Emotional Stability ($r = .20$, $p < .01$), Conscientiousness ($r = .20$, $p < .01$), Extraversion ($r = .01$, ns), and the narrow personality traits also correlated significantly with learner self-direction, with the largest magnitude correlation observed for Work Drive ($r = .49$, $p < .01$), followed by Optimism ($r = .31$, $p < .01$).

Table 3

Descriptive Statistics and Intercorrelations for the Personality Variables.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Agreeableness	---	.16	.28	.02	.19	.33	.26	.21
(2) Conscientiousness		---	.13	.06	.05	.23	.33	.20
(3) Emotional Stability			---	.24	.07	.59	.09	.20
(4) Extraversion				---	.01	.34	-.01	.01
(5) Openness					---	.18	.41	.43
(6) Optimism						---	.26	.31
(7) Work Drive							---	.49
(8) SDL								---
Mean	3.74	3.38	3.17	3.54	3.52	4.01	3.18	3.29
Standard Deviation	.62	.50	.69	.66	.59	.57	.62	.59

(Adapted from Kirwan et al. (2010, p. 26))

Note: $n = 2102$

Correlations > .09 or < -.09 are significant at the $p < .01$ level.

Correlations > .05 and < .09 or < -.05 and > -.09 are significant at the $p < .05$ level.

The next phase of the analysis involved examining the part correlations of learner self-direction with Openness, Conscientiousness, Extraversion, Agreeableness, Emotional Stability, Optimism, and Work Drive. A multiple regression analysis was conducted with learner self-direction as the dependent variable, and the remaining variables as predictors entered simultaneously. The part correlations represent the correlations of learner self-direction with each of the predictor variables, independent of the other predictors. Thus, the squared part correlations give an indication of the unique contribution of each variable to learner self-direction. An examination of the squared part correlations of the five significant variables indicates that Work Drive accounted for 9.6% of the variance, Openness accounted for approximately 4.3% of the variance, Optimism accounted for almost 1% of the variance, and Extraversion and Agreeableness each accounted for less than 1% of the variance in learner self-direction.

Hypothesis 1: Openness will be uniquely, positively related to learner self-direction after controlling for the other Big Five and narrow traits.

In order to estimate the unique relationship, or validity coefficient, between Openness and learner self-direction, a part correlation was calculated, controlling for Agreeableness, Extraversion, Conscientiousness, Emotional Stability, Optimism, and Work Drive. Openness was significantly and positively related to learner self-direction ($sr = .207$, $p < .01$), supporting Hypothesis 1. Table 4 shows the part correlation and part correlation squared coefficients. An examination of the squared part correlations indicates that when all other variables were controlled for, Openness accounts for more than 4% of the variance in learner self-direction.

Hypothesis 1a: The part correlation for Openness and learner self-direction will be higher than all the corresponding part correlations for the other traits except Work Drive.

The part correlation for Openness (*sr* = .21) was the second highest next to Work Drive (*sr* = .31) supporting the hypothesis.

Hypothesis 2: Conscientiousness will be uniquely, positively related to learner self-direction after controlling for the other Big Five and narrow traits.

In order to estimate the unique relationship, or validity coefficient, between Conscientiousness and learner self-direction, a part correlation was calculated, controlling for Agreeableness, Extraversion, Openness, Emotional Stability, Optimism, and Work Drive. Conscientiousness was positively but not significantly related to learner self-direction (*sr* = .02, $p > .05$), which does not support Hypothesis 2. Table 4 shows part correlation and part correlation squared coefficients. An examination of the squared part correlations indicates that when all other variables were controlled for, Conscientiousness accounts for less than .1% of the variance in learner self-direction.

Hypothesis 3: Emotional Stability will be uniquely, positively related to learner self-direction after controlling for the other Big Five and narrow traits.

In order to estimate the unique relationship, or validity coefficient, between Emotional Stability and learner self-direction, a part correlation was calculated, controlling for Agreeableness, Extraversion, Conscientiousness, Openness, Optimism, and Work Drive. Emotional Stability was positively and significantly related to learner self-direction (*sr* = .05, $p < .01$), which supports Hypothesis 3. Table 4 shows the part correlation and part correlation squared coefficients. An examination of the squared part correlations

indicates that when all other variables were controlled for, Emotional Stability accounts for approximately 1% of the variance in learner self-direction.

Hypothesis 4: Agreeableness will be uniquely, positively related to learner self-direction after controlling for the other Big Five and narrow traits.

In order to estimate the unique relationship, or validity coefficient, between Agreeableness and learner self-direction, a part correlation was calculated, controlling for Openness, Extraversion, Conscientiousness, Emotional Stability, Optimism, and Work Drive. Agreeableness was positively but not significantly related to learner self-direction ($sr = .03$, $p > .05$), which does not support Hypothesis 4. Table 4 part correlation and part correlation squared coefficients. An examination of the squared part correlations indicates that when all other variables were controlled for, Agreeableness accounts for less than .1% of the variance in learner self-direction.

Research question 1: What is the relationship between Extraversion and learner self-direction?

Extraversion was not significantly correlated with learner self-direction ($r = .01$, ns). However, the part correlation for Extraversion was significant at the .05 level ($sr = -.039$, $p < .05$) but only accounted for less than 1% of the variance in learner self-direction.

Hypothesis 5: Work Drive will be uniquely, positively related to learner self-direction after controlling for the other Big Five and narrow traits.

In order to estimate the unique relationship between Work Drive and learner self-direction, a part correlation was calculated, controlling for Agreeableness, Extraversion, Conscientiousness, Emotional Stability, Optimism, and Openness. Work Drive was

positively and significantly related to learner self-direction (sr = .31, p < .01), which supports Hypothesis 4. Table 5 shows the part correlation and part correlation squared coefficients. An examination of the squared part correlations indicates that when all other variables were controlled for, Work Drive accounts for more approximately 10% of the variance in learner self-direction.

Hypothesis 5a: The part correlation for Work Drive and learner self-direction will be higher than all the corresponding part correlations for the other traits.

The part correlation for Work Drive (sr = .31) was higher than all other corresponding part correlations.

Hypothesis 6: Optimism will be uniquely, positively related to learner self-direction after controlling for the other Big Five and narrow traits

In order to estimate the unique relationship between Optimism and learner self-direction, a part correlation was calculated, controlling for Agreeableness, Extraversion, Conscientiousness, Emotional Stability, Openness, and Work Drive. Optimism was positively and significantly related to learner self-direction (sr = .09, p < .01), which supports Hypothesis 6. Table 4 shows the part correlation and part correlation squared coefficients. An examination of the squared part correlations indicates that when all other variables were controlled for, Optimism accounts for approximately 1% of the variance in learner self-direction.

Table 4

Part Correlations for Learner Self-Direction with Big Five and Narrow Traits.

	sr	sr^2
Work Drive	.310	.096**
Openness	.207	.043**
Optimism	.088	.008**
Emotional Stability	.050	.003**
Extraversion	-.039	.002*
Agreeableness	.026	.000
Conscientiousness	.023	.000

Note: $n = 2102$. *sr*= part correlation; sr^2=part correlation squared.

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

All variables were entered simultaneously into a multiple regression model to estimate the degree of learner self-direction prediction. The overall regression was significant, F (7, 2094) = 15.19, p < .01, and these variables accounted for over 52% of the variance in learner self-direction. As can be seen in Table 5, five of the variables explained significant variance in the model: Work Drive, Openness, Optimism, Emotional Stability, and Extraversion (Table 5). The strongest correlate of learner self-direction was Work Drive (β = .37, p < .01), followed by Openness (β = .23, p < .01), Optimism (β = .12, p < .01), Emotional Stability (β = .07, p < .01), Extraversion (β = -.05, p < .05), Conscientiousness (β = .03, ns), and Agreeableness (β = .02, ns), which had the lowest magnitude correlation with learner self-direction in the study.

Table 5

Simultaneous Regression

	Unstandardized Coefficients		Standardized Coefficients			Correlations		
	B	SE	β	*t*	Sig.	Zero-order	Partial	Part
(Constant)	.57	.13		4.36	.00			
Work Drive	.39	.03	.37	15.90	.00	.49	.33	.31
Openness	.24	.02	.23	10.08	.00	.43	.22	.21
Optimism	.18	.03	.12	5.85	.00	.31	.13	.09
Emotional Stability	.11	.02	.07	4.69	.00	.20	.10	.05
Extraversion	-.07	.02	-.05	-3.40	.01	.01	-.08	-.04
Agreeableness	-.04	.02	.02	-1.67	.10	.21	-.04	-.03
Conscientiousness	.01	.02	.03	.09	.93	.20	.01	.01

Summary

Analysis of the data revealed five significant part correlations between specific traits and learner self-direction. The part correlations for Work Drive and Openness were significantly higher than all other part correlations. Neither Conscientiousness nor Agreeableness had significant part correlations despite having significant zero-order correlations with learner self-direction. Extraversion did not have a significant zero-order correlation with learner self-direction but the part correlation was significant.

The following chapter will address the findings of the current study including possible explanations for the confounding correlation results between the individual traits and learner self-direction. Also included will be a discussion of the importance and possible implications of the results. The fifth chapter will also include limitations of the study and recommendations for future research.

Chapter 5

Conclusions and Discussion

In determining the importance of personality in relation to learner self-direction for college age students, Big Five and narrow personality traits and learner self-direction were examined to determine the unique contribution of the relationships. To this end, it was hypothesized that both Big Five and narrow personality traits would be predictive of learner self-direction, and that there would be a positive part correlation for each of the six traits, except for Extraversion which would have a non-directional relationship. Specific focus was placed on Work Drive and Openness because those two personality traits have consistently been found to have a significant relationship with learner self-direction. This chapter will provide a summary of the results from the present study regarding the relationship between individual traits and learner self-direction. Also included is a discussion of the implications, some limitations of the study, and possible directions for future research.

Discussion

The present study was generally successful in terms of providing validation of the main research propositions. Five of the seven hypotheses were supported, which is both consistent with and extends prior studies (Kirwan, et al., 2010; Lounsbury, Levy, et al., 2009) in that learner self-direction was uniquely related to four of the Big Five traits studied as well as and both of the narrow traits examined here. The present findings reinforce and support Lounsbury, Levy et al.'s (2009) study which demonstrated "…the importance and richness of the self-directed learning construct and … its role as a

personality trait" (p. 417). Considering first the Big Five traits, the significant, positive relationships between them and learner self-direction are consistent with Lounsbury, Levy et al.'s (2009) findings. Regarding the narrow traits, significant, positive relationships between learner self-direction and Work Drive as well as Optimism were also supported.

It is interesting to note that the present findings run contrary to what Lounsbury, Levy et al. (2009) suggested in that the unique importance of Emotional Stability, Agreeableness, Conscientiousness, and Optimism in relation to learner self-direction is insignificant and probably should not be included in future trait-based nomological networks for learner self-direction. This means that the corresponding interpretation of self-directed learners as being emotionally resilient and better able to deal with stress than their traditional learning counterparts (Lounsbury, Levy, et al., 2009) is unwarranted. Similarly, Lounsbury, Levy et al.'s (ibid) interpretation that self-directed learners are more conscientious and more agreeable than their traditional peers is not defensible and should not be included in a profile of key personality traits of self-directed learners as unique indicators. One possible reason for the discrepancy between the current findings and those of Lounsbury, Levy et al. is that they did not control for multicollinearity of the Big Five traits and did not analyze part correlations as was done here.

In the present study, Conscientiousness was not found to have a unique, significant relationship with learner self-direction when controlling for the other traits—which does not support the second hypothesis. I failed to find evidence of a unique relationship between Conscientiousness and learner self-direction as suggested by previous research (e.g., Lounsbury, Levy, et al., 2009; Oliveira & Simões, 2006). While there was a

significant bivariate correlation between Conscientiousness and learner self-direction, the part correlation was small and not significant. From a statistical standpoint, one possible explanation for this discrepancy is that Conscientiousness is multicollinear with the other traits and does not uniquely predict learner self-direction alone. However, from a learning perspective, some aspects of the global traits likely contribute to the complexity of the learner self-directed learning construct. One reason for the multicollinearity is the complexity of learner self-direction. For example, it is possible that some facets of Conscientiousness (such as competence, order, dutifulness, achievement striving, and self-discipline (Costa & McCrae, 1992)) are important to learner self-direction (e.g., Oliveira & Simões, 2006) and could possibly be used to enhance the level of predictability (Moon, et al., 2003) that broader traits cannot distinguish alone. It is possible that many of these facets are expressed in the narrow trait of Work Drive, which had the strongest correlation, and part correlation, with learner self-direction.

In the case of Optimism, it appears that the magnitude of the optimism—learner self-direction relationship is lower than what was reported by Lounsbury, Levy et al. (2009). Students with higher levels of learner self-direction still appear to be more optimistic and upbeat than traditional learners, but the magnitude of this relationship is relatively minor, representing less than two percent of the shared variance between these two variables. In the case of Optimism, in particular, further researcher is needed to determine causal directionality. For example, while it is likely that higher (or lower) levels of Optimism lead to higher (or lower) levels of learner self-direction, it may also be that successful self-directed learning leads to higher grades and more recognition from

teachers, among other positive outcomes, which, in turn, leads to higher levels of generalized positive expectancies—i.e., optimism. Several lines of research have shown that optimism can be learned (Seligman, 1991) and modified through interventions (Gillham, Reivich, & Shatte, 2001).

On the other hand, some of the major conclusions about the importance of Work Drive and Openness in relation to learner self-direction hold up well in the current study, though the order of importance is reversed. Thus, Lounsbury, Levy et al.'s (2009) conclusion that, "it appears that the personality trait most characteristic of self-directed learners is Openness" should be emended to the following: it appears in the current study that the personality trait most characteristic of self-directed learners is Work Drive. Openness still demonstrates a significant, unique relationship with learner self-direction, and was the second highest part correlation in the present study, which is consistent with findings by Kirwan, et al. (2010), Lounsbury, Levy et al. (2009), and Oddi (1984). Thus, I concur with Lounsbury, Levy et al.'s (ibid) explanation "that Self-Directed Learning is also fairly highly related to Work Drive…is understandable given that individuals with higher levels of Work Drive are prone to set more challenging goals for themselves and to go above and beyond typical performance expectations" (Lounsbury, Gibson, et al., 2004, p. 416). The present results affirm the strength of the construct of Work Drive as a trans-situational predictor of performance in many different domains—including work and academic settings—as suggested by Lounsbury, Gibson et al (2004). The Work Drive construct is in alignment with Gladwell's (2008) claim that success requires a substantial

amount effort and time, what he calls the "10,000 hour rule", which is achieved by the type of effort expended by individuals with a high Work Drive.

Brockett and Hiemstra (Brockett & Hiemstra, 1991) emphasized the importance of self-directed learners being able to plan their own learning program and consistently evaluate progress. Hiemstra (1994) noted that self-directed learners should be prepared for the "unexpected" and capable of dealing with challenges in learning. Ponton and Carr (2000) state that "The concept of autonomy (Knowles, 1980; Merriam & Caffarella, 1999) exists under the personality characteristic rubric of self-directed learning." (p. 273). A student showing *initiative*, *resourcefulness*, and *persistence* is exhibiting manifestations related to personality characteristics as a learner. Ponton and Carr (ibid) note that Confessore (1991, p. 129) suggests that individuals who exhibit these "conative" factors in their learning activities "possess traits which are essential to successful self-direction in learning" (p.273). These factors are related to Ponton's (1999) discussion of autonomous learning consisting of five behaviors: *goal-directedness, action-orientation, active-approach to problem solving, persistence in overcoming obstacles, and self-startedness* which is consistent with the afore-mentioned conceptualizations of Work Drive (Lounsbury & Gibson, 2010). Again, this aligns with Lounsbury, Gibson et al's (2004) Work Drive construct as a predictor of performance and Gladwell's (2008) emphasis on persistence leading to success.

The second important modification in Lounsbury, Levy et al.'s (2009) conceptual account of the relationships between learner self-direction and the personality traits studied here pertains to the relatively large amount of variance which is shared among the

personality traits in accounting for variation in learner self-direction. Only approximately 15% of the total of 24% of variance in learner self-direction accounted for by the personality traits can be assigned to individual personality traits, meaning that the other nine percent, or over one-third, of the total variance in learner self-direction is shared among the traits and not attributable to any one trait. Traits may be actualized in combination or together when students engage in self-directed learning.

Grow (1991) describes many different types of learners and teachers in his Staged Self-Directed Learning Model. He states that some factors of self-directed learning can be developed while others are difficult to suppress. Grow asserts self-direction is both a function of personal attributes, which develop in stages, and situational responses which overlap uniquely in each individual (p. 147). Brockett and Hiemstra (1991) agree that self-direction in learning is a complex combination of person and environment which is different for each learner.

The results of the present study are fully consistent with Lounsbury, Levy et al.'s (2009) observation that "More generally, it is clear that self-directed learning does not occur in isolation from other personality traits; rather, self-directed learning appears to be connected to a wide range of different traits" (p. 416). Based on the complexity of self-directed learning, it makes sense that self-directed learning cannot be readily assigned to the Big Five traits. It makes much more sense that aspects of each of the Big Five are used in combination to achieve learning goals, which would explain the large amount of shared variance between the traits.

The first research question was to determine the relationship between Extraversion and learner self-direction. While the results of the present investigation indicated a significant, positive relationship between Extraversion and learner self-direction, the effect size was very small. This finding is consistent with Lounsbury, Levy et al. (2009), but contradicts Kirwan et al.'s (2010) non-significant finding. Such conflicting results can be seen as mirroring the lack of a clear connection in the larger literature between Extraversion and learner self-direction. One potential explanation is that self-directed learners can function just as well alone or in group settings.

The generalizability of personality—learner self-direction relationships across different domains of demographic and social role characteristics augurs well for future self-direction learning theory development—which seeks to establish generalized construct relations involving personality traits—and it provides food for thought concerning a crucial unresolved issue noted by Clancy and Dollinger (1993): What is the causal direction of the personality—learner self-direction relationship? That is, do personality traits influence learner self-direction, or does learner self-direction influence personality traits, or is the relationship bi-directional? Attempts to resolve this issue should involve a longitudinal design, which was not utilized in either Lounsbury, Levy et al. (2009), Kirwan et al. (2010), or the present investigation, and may involve measurement of college student experiences and activities through which personality is manifested. As but one example, it may be that higher levels of Openness and Work Drive lead to more successful study habits (Lounsbury, Gibson, et al., 2004) and academic performance (Ridgell & Lounsbury, 2004), which may, in turn, lead to higher levels of learner self-direction.

Nevertheless, there are several considerations that point toward a conceptual model emphasizing the primacy of personality traits in leading to and influencing learner self-direction. From a lifespan-developmental perspective (e.g., Berger, 2001; Erickson, 1980), identity issues emerge primarily in adolescence, whereas personality traits, including constructs corresponding to the Big Five, have been reliably studied in children as young as age 3 (van Lieshout & Haselager, 1993, 1994); thus, it is not unreasonable to consider personality traits as preceding learner self-direction. Moreover, personality traits are typically regarded as being relatively invariant or consistent over time and across situations and environmental or situational characteristics (e.g., Pervin & John, 1997), whereas learner self-direction may be influenced by environmental factors such as student-teacher interactions, rewards for autonomous learning in school, the opportunity for more choice in the learning environment, and parental encouragement for self-regulated learning by the child (Connell & Wellborn, 1991; d'Ailly, 2004; Deci & Ryan, 2002; McCombs, 2006; Zimmerman & Schunk, 2001).

The present findings can also be interpreted in light of Chickering and Reisser's (1993) seven major developmental vectors or outcomes for college students. These developmental vectors can be seen, in part, as logical outcomes of personality traits (Chickering, 2004). If, as we contend, the significant personality traits in this study are important for college student adjustment and self-direction, then some of these traits should correspond to Chickering and Reisser's major dimensions. Indeed, this is the case for the vector they term *moving through autonomy toward interdependence* which is related to the learner self-direction and Conscientiousness.

As another perspective on the present findings, if one assumes that personality traits are relatively consistent for students across situations and over time, and if learner self-direction changes more across situations and over time, the most logical interpretation of why the personality trait— learner self-direction relationship is relatively consistent within and across such disparate factors as age and returning to college after a long break is because the personality traits are driving the relationship, which implies that personality traits are affecting learner self-direction, not the reverse—that learner self-direction is primarily influencing personality traits. If reciprocal influence was found for personality traits and learner self-direction, it would lend support to the idea that learner self-direction is a complex construct that is not simply connected to any one trait. This is a theoretical scenario which should be more rigorously tested by future research, but should it prove to be even partially true, it would have major implications for those theories of self-direction in learning which place primary emphasis on the role of personal experiences and environmental determinants of college student learning self-direction. As Long (1989) suggests, focusing on the psychological characteristics of the learner puts the emphasis on learning rather than pedagogical processes (Garrison, 1997). Understanding psychological aspects of students can help teachers identify individual needs, foster self-direction, and create a dynamic, learner-centered environment. Such a model would not rule out the role of experiential and environmental factors in self-directed learning for college students; rather, it would mean that personality traits, even traits measured in high school, may subsequently influence collegiate activities and experiences which may, in turn, affect the self-directed learning of college students. It may even be that personality traits, not

academic and personal experiences, are the major determinants of college student self-directed learning.

Limitations

While the present investigation has contributed significantly to the body of knowledge regarding personality traits and their relationships with learner self-direction, there are several limitations of the current study that should be acknowledged. First, this study was limited to a four-month interval in time in a single geographic area at a large, public university, leaving open the question of generalizability to other time periods, geographic areas, and types of universities. Most of the study participants were lower-level students; thus, it is not possible to know if the results would generalize to samples of primarily upper-level or graduate students. A broader sample distribution would give a more complete picture of the relationship between personality traits and learner self-direction. For example, how might personality trait—learner self-direction relationships differ in students in smaller colleges, non-traditional students, or learners outside of formal learning environments?

Second, the current study looked at personality—learner self-direction relationships at a single point in time. A longitudinal study would give a better picture of the stability of the relationship between personality traits and learner self-direction is stable over time. For example, to what extent is self-direction in learning affected by social interactions and specific learning environments?

Last, the present study used an archival data set. While there are numerous advantages to the use of archival data, such as being more convenient and useful in

exploring several associations of interest, there are drawbacks as well. For example, archival data sets may have missing data, validity issues such as lack of control over data collection, and issues of generalizability as the sample may not adequately represent the population under study.

Recommendations for Future Research

There are a number of other interesting areas for future research which could clarify and extend the present findings. In addition to the need for replication on different samples, research could be conducted on how the Big Five and narrow personality traits relate to sense of identity and learner self-direction. Another topic for investigation is the relationship between age of students and learner self-directedness. As mentioned earlier, perhaps the most important need for future research is to utilize longitudinal research designs to help clarify the direction of causality for personality traits vis-à-vis self-directed learning and to try to determine how these linkages are established. For example, do individuals who are more optimistic engage in new learning activities than more pessimistic individuals which helps facilitate self-direction for optimistic students? Hopefully, subsequent research in this area can assess the linkages among self-directed learning, Big Five and narrow traits, and a variety of important criteria in the college student domain, including cumulative grades and performance in a single class (e.g., Furnham, Chamorro-Premuzic, & McDougall, 2003; Lounsbury, Sundstrom, Loveland, & Gibson, 2003), life satisfaction (Lounsbury, Saudargas, et al., 2004), dropout and retention (Heilbrun, 1962, 1965) and subjective well-being (DeNeve & Cooper, 1998).

Concluding Remarks

The results of the present study indicate that the Big Five traits as well as the two narrow traits measured in this study were each related to learner self-direction, with Work Drive and Openness accounting for most of the variance in learner self-direction on their own. Taken as a whole, the present findings were interpreted as, in part, confirming and extending the results of Lounsbury et al. (2009) and Kirwan et al. (2010) regarding the Big Five, narrow traits, and learner self-direction, demonstrating the generalizability of personality trait—learner self-direction relationships across a variety of different demographic and personal subgroups of students, and providing some clues that the direction of the causal arrow may be from personality traits to learner self-direction.

In conclusion, it is clear that learner self-direction has multiple connections to personality traits and is not clearly associated with just one of the Big Five traits. In a sense, this pattern of multiple connections to personality is consistent with the diverse factors learner self-direction has been linked to in the theoretical literature, as, for example, the six vectors of college student development that Chickering and Reisser (1993) posit as leading to identity establishment for college students. Hopefully, further research will extend and clarify the nomological network of personality traits and self-direction in learning across a broad range of settings.

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Appendices

Appendix A

Permission Letter for use of Data

September 25, 2011

On behalf of Resource Associates, Inc., I give permission to Jeral Kirwan to use and analyze data from our personality and school criteria data set collected on undergraduate and graduate students at the University of Tennessee. It is our understanding that these data will be used for research purposes only. These data were collected with the approval of the university Institutional Review Board.

No individual identifying information is supplied for these data records which would be delivered to Jeral Kirwan in an ASCII file. Each data record has the following format:

Subj. #	Sex	Grade	Extroversion	Openness	Agreea-bleness	Conscient-iousness	Emotional Stability
001	1	13	3.22	2.44	4.56	4.02	4.14

Work Drive	Optimism	Toughness	Learner self-direction	Aggression
4.22	4.44	2.84	3.21	4.10

Please let me know if you have any questions.

Sincerely,

Lucy W. Gibson, Ph. D.
Vice-President
Industrial-Organizational Psychologist
Ph. 865-579-3052

Appendix B

Institutional Review Board Approval

Lawson, Brenda S [blawson@utk.edu]

Actions
To:
Kirwan, Jeral Ray
Cc:
jlounsbury@aol.com
Thursday, April 05, 2012 11:54 AM

I have looked over your proposed Form A human subjects' research protocol entitled "Examination of Big Five and Narrow Traits in Relation to Learner Self-Direction", and I will certify it to be exempt from IRB review.
Best,
Brenda

Brenda Lawson
Compliance Officer and IRB Administrator
Office of Research
Phone: (865) 974-7697
Fax: (865) 974-7400

Vita

Jeral Kirwan was born in Norman, Oklahoma but was raised in Knoxville, Tennessee. He has B.A.s in Psychology and Anthropology, an M.S in Educational Psychology, and has completed a Ph.D. in Educational Psychology and Research—Adult Learning from the University of Tennessee, Knoxville.