An Examination of Learner Self-Direction in Relation to the Big Five and Narrow Personality Traits

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Abstract

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 are differentiated from narrow personality traits. Correlation and multiple regression analyses were used with a sample of 2,102 college students to examine 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. Extroversion 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.

Keywords
personality, self-directed learning, the five-factor model, individual differences, traits, unique variance

Introduction

Self-direction in learning has been a major topic in the field of adult learning for many years, with 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 measures 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, which include 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). It has been shown that many psychological variables are directly related to learner self-directedness (Oliveira & Simões, 2006). However, there is a dearth of empirical research that explores 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 disparate factors such 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.

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 multicollinearity 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, the
present study investigates 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.

**Purpose and Significance**

The goal of the present study is to try understand the connection between personality and self-direction in learning and ascertain to what extent individual personality traits are related to learner self-direction when the traits represented by the five-factor model of personality (Digman, 1990) are differentiated from narrow personality traits. This study 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.

The significance of this study 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.

**Literature Review**

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 much 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 that 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); and consciousness (Oliveira & Simões, 2006).

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) pointed 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 toward 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 (PRO) model (Brockett & Hiemstra, 1991) was selected for the current study.

**The PRO Model**

Brockett and Hiemstra (1991) developed a model to distinguish between the different aspects of self-direction in learning. The 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). Self-direction in learning involves both components intertwined within the learner’s social context as he or she works toward personal responsibility for his or her learning.

Drawing on Brockett (1983), 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.

To explore the relationship between personality traits and learner self-direction, personality will be defined, broad and narrow traits discussed, and the Big Five model and learner self-direction introduced. Finally, literature from empirical studies discussing the relationships between personality traits and learner self-direction will serve as an ingress to the descriptions of methods, procedures, presentation of findings, and discussion.

**Personality**

There has long been a debate in psychology as to whether behavior is determined by situational and 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. Although it is unclear what the exact relationship is between the environment and personality, several theories have addressed how the developmental environment influences personality.

Personality is commonly defined as a relatively complex set of traits that influence behavior across time and situation (Graziano & Eisenberg, 1997; Zimbardo & Gerrig, 1996). Trait theories became prominent in the 1980s largely due to the work of industrial/organizational psychologists (Hogan & Roberts, 1996). 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.

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, Fischer, & Subich, 1998), and is the most commonly used theory for normal personality (Costa & McCrae, 1988; Digman & Inouye, 1986; John, 1990; McCrae & Costa, 1987). Numerous studies have verified the factor structure and construct validity of the Big Five constructs (Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism; Costa & McCrae, 1994). The five-factor model suggests that there are five independent factors of personality most commonly labeled: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (often referred to by the acronym OCEAN). With regard to the latter point, the Big Five model of personality traits of Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (which will be 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).

**Narrow Personality Traits**

The five factor’s broad descriptions of personality make it very useful. 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). Thus, it may be necessary to investigate narrow personality traits as well to examine how personality factors are related to a broader spectrum of personality variables McAdams (1992).

A common conundrum in studying personality is that even if a particular criterion is strongly associated with a broad trait, the scope of the trait does not necessarily lead to an understanding of the conditions surrounding the relationship. However, it may be possible 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). When narrow traits are included within a broader personality dimension, this may allow for more significant findings and a better understanding of the predictive factors and contributions of narrow traits. Therefore, for the purpose of this study, the Big Five will be utilized, and the following two narrow traits will be considered to account for additional variance in self-directed learning. Along with the Big Five traits, two narrow traits are included in the present study. Work Drive and Optimism 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 et al., 2009).

**Learner Self-Direction**

Learner self-direction in this study is examined as an individual differences variable. Consistent with prior conceptualizations of self-direction in learning (e.g., Brockett, 1983; Brockett & Hiemstra, 1991; Costa & Kalick, 2003), learner self-direction is conceptualized and measured 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. For this study, the 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.

Below, a brief rationale is provided for each proposed relationship 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 (b) basing the hypothesis on prior research relating the personality trait to learner self-direction.

**Learner self-direction and Openness.** 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 as 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 openness-mindedness. In addition, Kirwan et al. (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.

**Learner self-direction and Conscientiousness.** 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 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 and Simões (2006) found a statistically significant relationship between Conscientiousness and learner self-direction.

**Learner self-direction and emotional stability.** 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 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).

**Learner self-direction and Agreeableness.** 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 (Costa & McCrae, 1992), 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 ($r = .21, p < .01$).

**Learner self-direction and Extroversion.** There is no evidence in prior research that Extroversion is significantly related to learner self-direction. Due to this, a directional hypothesis was not put forward in this study.

**Learner self-direction and Work Drive.** 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.

**Learner self-direction and Optimism.** 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 ($r = .31, p < .01$).

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.

### Method

#### Population and Sample

Data from a convenience sample of 2,102 undergraduate psychology students at a large, southeastern U.S. public university were collected, of which approximately 30% were male (70% female). Seventy-nine percent of the participants were freshmen; 15% sophomores, 3% juniors, and 3% seniors. Eighty-four percent of the participants identified themselves as Caucasian; 9% African American, 2%, Hispanic, 2% Asian, and 3% Other.

#### Procedure

After obtaining human subjects approval from the university’s Institutional Review Board, participants were solicited to take a personality inventory online. 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.
Data Analysis

Data analysis included 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 $r$ and its square, $r^2$.

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.

Research Question and Hypotheses

Where justifiable in terms of the empirical literature, directional hypotheses were advanced; otherwise, the trait–learner self-direction relationship was examined 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, hypotheses were advanced addressing the relative strength of pairs of part correlations. For example, because of the strength of the bivariate relationship between Openness and learner self-direction, it was hypothesized 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.

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.

**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 (the inverse of Neuroticism) 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 Extroversion and learner self-direction?

Narrow Traits

**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.

Instrumentation

The Big Five Personality Inventory. 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, Extroversion, 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 et al. (2010); Lounsbury et al. (2009); Lounsbury, Tatum, et al. (2003); Lounsbury, Gibson, and Hamrick (2004); and Lounsbury and Gibson (2010). The RATTC has 118 items represented by statements in which respondents are asked to express agreement or disagreement on a 5-point Likert-type 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):

- **Agreeableness**—being agreeable, participative, helpful, cooperative, and inclined to interact with others harmoniously (coefficient $\alpha = .77$)
- **Conscientiousness**—being conscientious, reliable, trustworthy, orderly, and rule-following (coefficient $\alpha = .84$)
- **Emotional Stability**—overall level of adjustment and emotional resilience in the face of stress and pressure (conceptualized as the inverse of neuroticism; coefficient $\alpha = .86$)
• **Extroversion**—tendency to be sociable, outgoing, gregarious, warmhearted, expressive, and talkative (coefficient \( \alpha = .83 \))

• **Openness**—receptivity and openness to change, innovation, new experience, and learning (coefficient \( \alpha = .80 \))

• **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 (coefficient \( \alpha = .85 \))

• **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 (coefficient \( \alpha = .87 \))

• **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 (coefficient \( \alpha = .81 \)).

The RATTC Self-Directed Learning scale. The RATTC Self-Directed Learning scale is a 10-item scale with responses made on a 5-point Likert-type scale: 1 = *strongly disagree*, 2 = *disagree*, 3 = *neutral/undecided*, 4 = *agree*, 5 = *strongly agree*. It was developed as part of the larger RATTC, a system for measuring personality traits for adolescents and adults (Lounsbury & Gibson, 2010). 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.

### Results

Pearson’s 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 2.

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 Extroversion. Specifically, in descending order of magnitude, the correlations with Self-Directed Learning were as follows: Openness \( r = .43, p < .01 \), Agreeableness \( r = .21, p < .01 \), Emotional Stability \( r = .20, p < .01 \), Conscientiousness \( r = .20, p < .01 \), Extroversion \( r = .01, ns \), 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 \( r = .31, p < .01 \).

### Hypothesis 1:

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

The next phase of the analysis involved examining the part correlations of learner self-direction with Openness, Conscientiousness, Extroversion, 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 Extroversion and Agreeableness each accounted for less than 1% of the variance in learner self-direction.
Table 2. Descriptive Statistics and Intercorrelations for the Personality Variables.

| (1) Agreeableness | (2) Conscientiousness | (3) Emotional Stability | (4) Extroversion | (5) Openness | (6) Optimism | (7) Work Drive | (8) SDL |
|-------------------|----------------------|------------------------|-----------------|--------------|--------------|---------------|--------|
| —                 | .16                  | .28                    | .02             | .19          | .33          | .26           | .21    |
| (2) Conscientiousness | —                 | .13                    | .06             | .05          | .23          | .33           | .20    |
| (3) Emotional Stability | —                  | —                      | .24             | .07          | .59          | .09           | .20    |
| (4) Extroversion | —                    | —                      | .01             | .34          | .01          |               |        |
| (5) Openness | —                    | —                      | .18             | .41          | .43          |               |        |
| (6) Optimism | —                    | —                      | .26             | .31          |               |               |        |
| (7) Work Drive | —                    | —                      | .49             |               |               |               |        |
| (8) SDL | —                    | —                      |                 |               |               |               |        |

M 3.74 3.38 3.17 3.54 3.52 4.01 3.18 3.29
SD 0.62 0.50 0.69 0.66 0.59 0.57 0.62 0.59

Source. Adapted from Kirwan, Lounsbury, and Gibson (2010, p. 26).
Note. n = 2,102. 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. SDL = self-directed learning.

Table 3. Part Correlations for Learner Self-Direction with Big Five and Narrow Traits.

|              | sr | sr²  |
|--------------|----|------|
| Work Drive   | .310| .096** |
| Openness     | .207| .043** |
| Optimism     | .088| .008** |
| Emotional Stability | .050| .003** |
| Extroversion | −.039| .002*  |
| Agreeableness | .026| .000  |
| Conscientiousness | .023| .000  |

Note. n = 2,102. sr = part correlation; sr² = part correlation squared.
*p < .05. **p < .01.

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.

To estimate the unique relationship, or validity coefficient, between Conscientiousness and learner self-direction, a part correlation was calculated, controlling for Agreableness, Extroversion, Conscientiousness, Openness, 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.

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.

To estimate the unique relationship, or validity coefficient, between Emotional Stability and learner self-direction, a part correlation was calculated, controlling for Agreeableness, Extroversion, 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.

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

To estimate the unique relationship, or validity coefficient, between Agreeableness and learner self-direction, a part correlation was calculated, controlling for Openness, Extroversion, 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.
when all other variables were controlled for, Agreeableness accounts for less than 0.1% of the variance in learner self-direction.

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

Extroversion was not significantly correlated with learner self-direction ($r = .01, ns$). However, the part correlation for Extroversion 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.

To estimate the unique relationship between Optimism and learner self-direction, a part correlation was calculated, controlling for Agreeableness, Extroversion, 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 3 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.

Overall Variance

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 more than 52% of the variance in learner self-direction. As can be seen in Table 4, five of the variables explained significant variance in the model: Work Drive, Openness, Optimism, Emotional Stability, and Extroversion. Work Drive was positively and significantly related to learner self-direction ($sr = .31, p < .01$), followed by Openness ($β = .23, p < .01$), Optimism ($β = .12, p < .01$), Emotional Stability ($β = .07, p < .01$), Extroversion ($β = .05, p < .05$), Conscientiousness ($β = .03, ns$), and Agreeableness ($β = .02, ns$), which had the lowest magnitude correlation with learner self-direction in the study.

Conclusion 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 Extroversion, 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. A summary of the results from the present study is provided 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 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 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 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 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 et al., 2009) is unwarranted. Similarly, based on these findings, Lounsbury et al.’s (2009) 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 et al. (2009) 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. The analysis did not indicate evidence of a unique relationship between Conscientiousness and learner self-direction as suggested by previous research (e.g., Lounsbury 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 incongruity 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, Hollenbeck, Humphrey, & Maue, 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 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 2% of the shared variance between these two variables. In the case of Optimism, in particular, further research 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—that is, optimism. Several lines of research have shown that optimism can be learned (Seligman, 1991) and modified through interventions (Gillham, Reivich, & Shatte, 2001).

On the contrary, 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 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 of Kirwan et al. (2010), Lounsbury et al. (2009), and Oddi (1984). Thus, the results support Lounsbury et al.’s (2009) 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, & Hamrick, 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, and Hamrick (2004). The Work Drive construct is in alignment with Gladwell’s (2008) claim that success requires a substantial amount of 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 (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) stated 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 noted that Confessore (1991, p. 129) suggested 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 aforementioned conceptualizations of Work Drive (Lounsbury & Gibson, 2010). Again, this aligns with Lounsbury, Gibson, and Hamrick’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 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 9%, or more than 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) described 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 that self-direction is both a function of personal attributes, which develop in stages, and situational responses which overlap uniquely in each individual. Brockett and Hiemstra (1991) agreed 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 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 Extroversion and learner self-direction. While the results of the present investigation indicated a significant, positive relationship between Extroversion and learner self-direction, the effect size was very small. This finding is consistent with Lounsbury 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 Extroversion 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 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, & Hamrick, 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, 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 learner 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 disparate factors such 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) suggested, 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 learners; 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 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 over time. For example, to what extent is self-direction in learning affected by social interactions and specific learning environments?

Finally, 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-direction. 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 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, Gibson, & Loveland, 2003), life satisfaction (Lounsbury, Saudargas, & Gibson, 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) posited 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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