

Florida State University Libraries

2015

Do Dispositional Characteristics Influence Reading?: Examining Personality and Reading Fluency

Kathleen Krach, Michael P. McCreery, W. Paul Jones and Scott A. Loe



Do Dispositional Characteristics Influence Reading?

Examining Personality and Reading Fluency

S. Kathleen Krach, Ph.D.

Troy University

Michael P. McCreery, Ph.D.

University of Arkansas Little Rock

W. Paul Jones, Ed.D.

Scott A. Loe, Ph.D.

University of Nevada Las Vegas

Abstract

Previous research demonstrates specific relationships between personality traits and general academic performance. In addition, research studies have demonstrated relationships among personality and variables related to reading fluency (i.e., speed, accuracy, automaticity, and prosody). However, little investigation has examined specific links between personality and reading fluency. The researchers hypothesized that there is a direct relationship between personality and reading fluency when accounting for cognition. Findings indicate that the personality trait of Openness is a positive predictor of reading fluency ability; whereas, a significant negative relationship was found between Neuroticism and Reading Fluency. This information may help determine contributing factors in reading fluency problems and aid in intervention planning.

Keywords: Reading Fluency, Personality, Assessment, Prosody

Do Dispositional Characteristics Influence Reading?

Examining the Impact of Personality on Reading Fluency

Researchers have long stressed the influence of non-cognitive factors on scholastic outcomes. Early works on this subject describe how dispositional factors such as cooperation and integrity (McCloy, 1936), value assimilation (Ausubel, 1968), and temperament (Wechsler, 1943) all appear to influence achievement-test performance. More recently, researchers have shifted focus from these general variables to the more specific dispositional factors associated with personality. In particular, there has been an academic push exploring how personality traits intersect with learning. De Raad and Schouwenburg (1996) theorized that these intersections occur at three main points: “content (which personality traits are important in learning and education), function (what role do these traits play), and value (dealing with standards for changing individuals or circumstances)” (p.304). They emphasize that a comprehensive understanding of these intersections is necessary to provide accurate academic interventions (De Raad & Schouwenburg, 1996)

Personality and General Learning

After much debate on the topic (see John & Srivastara, 1999 for review), the “Big 5,” or Five Factor Model (FFM), has emerged as the field’s primary exemplar of personality description. This taxonomic structure characterizes personality differences as hierarchical (e.g., behavioral domains leading to simple traits) and measured (e.g., follows a continuum). These domains, with their corresponding bipolar traits, include: Neuroticism (e.g., anxious / moody <---> self-contained / confident), Extroversion (e.g., sociable / energetic <---> isolated / introverted), Openness (e.g., curious / imaginative <--

-> tough-minded / conservative), Agreeableness (e.g., warm / sympathetic <---> argumentative / cantankerous), and Conscientiousness (e.g., efficient / organized <---> haphazard / disordered).

The taxonomic structure of the FFM provides a common framework that has been used by researchers across domains and settings. Broadly speaking, research shows that Openness appears positively correlated with learning motivation (Farsides & Woodfield, 2003; Tempelaar, Gijsselaers, van der Loeff, & Nijhuis, 2007) and critical thinking (Bidjerano & Dai, 2007). Conscientiousness has been found to play a substantially advantageous role in learning in task-oriented situations (Barrick & Mount, 1991, Barrick, Mount, & Strauss, 1993; Schmit & Ryan, 1993). Finally, Agreeableness has been found to predict creativity (McCrae, 1996).

Researchers have also examined personality's influence on more specific academic outcomes. Current research suggests a relationship between Openness and SAT verbal scores (Noftle & Robins, 2007), while Conscientiousness has predicted both high school and college GPA (Conard, 2006). Moreover, exploration into other areas of student performance finds that conscientious and introverted students are more likely to excel academically (Furnham, Chamorro-Premuzic, & McDougall, 2003). This has been attributed to the fact that introverted students may be less likely to study in groups, and thus practice better study habits (Furnham, Chamorro-Premuzic, & McDougall, 2003).

Learning new information is also supported by such traits as achievement striving, dutifulness, order, and responsibility, all characteristics of Conscientiousness (Furnham, Chamorro-Premuzic, & McDougall, 2003). This connection appears to be a strong predictor of academic performance and has a similar effect on learning to other known

variables, including instructional design strategies, socioeconomic status, and grade difference (Poropat, 2009).

Research has also discovered a consistent relationship between Openness and cognitive ability / intelligence. Furnham, Monsen, and Ahmetoglu (2009) found a correlation of .51 between Openness and Typical Intellectual Engagement. Holland, Dollinger, Holland, and MacDonald (1995) found a coefficient of .42. Ackerman and Heggstad (1997) conducted a meta-analysis that found correlations between intelligence measures of Openness ranging from coefficients of .26 to .41 (95% Confidence Interval). Finally, Austin, et al. (2000) found Openness correlates with IQ between 0.34 and 0.35, depending on the sample.

These findings illustrate that, although cognitive ability strongly influences the development of academic skills (Ackerman & Heggstad, 1997; Durand, Hulme, Larking, & Snowling, 2005; Swanson & Alexander, 1997; Torgesen & Davis, 1996), other factors (i.e., personality) may also contribute directly or indirectly. McCrae (1996) suggests that, although intellectual ability may be a cornerstone of childhood learning, intellectual interest or curiosity in Openness to Experience may better define intelligence as people age into adulthood. Thus, any researchers examining personality and achievement must consider cognitive ability in their analyses. This is because achievement test score differences could be due to personality characteristics, but they may also result from fluctuations in intellectual ability.

Personality Findings Specific to Reading

Research on the relationships between personality and learning have extended beyond the general concepts of cognitive ability, motivation, and study habits. In the

early days, there was a clear line of inquiry into reading and personality. For example, Gates (1941) theorized connections between personality and reading, but this work was criticized because the data at that time did not substantiate his findings (Tinker, 1946). Since then, research specific to personality and reading became limited mostly to the manner in which personality variables affect reading interventions (Brandt, 1975) or reading motivation (Francis & Montgomery, 1993; Schutte & Malouff, 2004; Tirre & Dixit, 1995), but not reading itself.

Beaujean et al. (2011) published the only available current article specific to the topic of reading and personality. They found that Agreeableness ($\beta = -.26$), Conscientiousness ($\beta = .16$), and Openness ($\beta = .20$) directly predicted general reading achievement. Their study also examined cognitive ability, but they did not find it to be a mediating or moderating variable between reading and personality. Oddly enough, they also did not find cognition to be a predictor of reading achievement. Given that other researchers have found strong relationships between reading and cognitive ability (Durand, Hulme, Larking, & Snowling, 2005; Swanson & Alexander, 1997; Torgesen & Davis, 1996), it should be noted that the findings from the samples in the Beaujean et al. (2011) study might be inconsistent with findings from other samples. Specifically, their sample consisted of Midwestern college students; therefore, this likely lead to restricted variability of scores for the cognitive ability construct. After an extensive search of the literature, no other articles specific to reading and personality were found.

Reading Fluency

Most current researchers describe reading fluency as a measure of accuracy and speed (Jenkins, Fuchs, van den Broek, Espin, & Deno, 2003; Klauda & Guthrie, 2008;

Kuhn & Stahl, 2003; Young & Bowers, 1995). Young and Bowers (1995) described Reading Fluency as a measure of accuracy and reading rate for both individual words and passages. Jenkins et al. (2003) describe it as “time-based measures of accurate word reading, both in and out of context, scaled as reading speed (correct words per minute) and reading times (seconds per correct word)” (p. 720).

Although there is no research extant on correlates between reading speed and personality, some does exist on the subject of general processing speed and personality. Dickman and Meyer (1988) found that impulsivity (lack of Conscientiousness) was positively related to higher speeds but negatively related to accuracy. Put another way, highly impulsive responders were quicker to reply, but did so with fewer items correct. Socan and Bucik (1998) found that Extroversion was positively related to processing speed on a cognitive task; however, Neuroticism was negatively correlated. That is to say, individuals who were more outgoing responded at a faster pace, but those who were more anxious / timid answered more slowly.

Another critical aspect of reading fluency is prosody (Kuhn & Stahl, 2003; Young & Bowers, 1995). Reading prosody is described as the ability to use the “ordinary rise and fall of pitch” found in everyday verbal conversations (Schwanenflugel, Hamilton, Kuhn, Wisenbaker, & Stahl, 2004, p. 119). Several researchers have demonstrated that reading prosody differentiates good readers from poor readers (Clay & Imlach, 1971; Dowhower, 1987; Schwanenflugel, et al., 2004). Good readers use infrequent pauses in their reading and include vocal changes at the end of clauses, where poor readers use long and frequent pauses with a flat vocal pattern throughout their reading. Young and Bowers (1995) found that readers lacking prosody did so regardless of how difficult the text was,

whereas average readers had prosody at and below their own reading levels.

Personality research on reading prosody is scant (if not completely nonexistent). However, speech prosody research is available. Speech prosody research should be considered because it has a statistically significant relationship to reading prosody (Dowhower, 1991; Schreiber, 1980). In personality research on speech prosody, Keller (2005) found that speakers who used smooth, compelling, and inflective speech are also often individuals whose personalities are, “trusting, social, and dominant”, translated as having low Neuroticism, high Extroversion, and high Agreeableness (p. 75). No other research on reading or speech prosody and personality could be found.

Finally, one of the foundations of reading fluency research is LaBerge and Samuels’ (1974) “automaticity theory,” which proposes that apt readers have no need to focus intently to process written language. Fuchs, Fuchs, Hosp, and Jenkins (2001) expand this to state that poor readers may be misusing their energies to try to predict (guess) at upcoming words in a phrase instead of doing the work needed to figure out the correct words. Contradicting this theory is the work by Samuels (1968), who found that readers who used a systematic guessing technique showed better reading fluency in terms of speed and accuracy. A comparison of the studies makes it unclear whether guessing is a way of predicting strong readers or poor ones. All that can be said is that there does appear to be some relationship between guessing and reading fluency.

Although there is no research on guessing in reading as relates to personality, there is a great deal examining general guessing behaviors and their relationships to personality. Kubinger and Wolfsbauer (2010) found a moderate effect, indicating that those with higher scores in Openness exhibit more guessing behavior. Findings by Ávila

and Torrubia (2004) indicate that those who exhibit high scores on Extroversion (extroverted), low scores on Conscientiousness (impulsive), and low scores on Neuroticism (calm / not anxious) often exhibit more behaviors that can be attributed to guessing.

Research Questions

Reading fluency and academic abilities may be related to more than just the previously established variables of cognitive deficits / strengths (Farmer & Klein, 1995), phonemic awareness (Katzir et al, 2006), or intelligence (Kirby & Das, 1977). Instead, personality may need to be considered as an additional variable when examining reading fluency performance. Given the dearth of research between personality and reading fluency, the current authors wanted to investigate these relationships.

Methods

Participants

A power analysis (Cohen, 1992) was conducted that indicated a minimum of 45 subjects (i.e., large effect) was needed for the most complex analysis. A total of 90 undergraduate students attending a College of Education at an urban university in the southwestern United States participated in the study. An adult population was chosen because it was surmised that reading fluency should be a clearer construct amongst this group compared to younger readers (L. S. Fuchs et al., 1993).

All individuals volunteered to participate in the study as part of a requirement for an undergraduate educational psychology course. Scores for one of the participants indicated that this individual was a significant outlier, so their data was removed from the study. Of the remaining 89, 17 (19.1%) were male and 72 (80.9%) were female, ranging

in age from 18 to 45 ($M = 23.31$; $SD = 5.73$). The gender and age breakdown is not unexpected given that the participants were drawn as a sample of students within a College of Education. Race / ethnicity breakdown were as follows: four participants reported as Asian (4.5%), seven as Black or African American (7.9%), one as Native Hawaiian or Pacific Islander (1.1%), 62 as White, Non Hispanic (69.7%), five as Hispanic (5.6%), and 10 Other (11.2%).

Instruments

NEO-FFI: The NEO-FFI (Costa & McCrae, 1992) is published by PAR as an abbreviated version (60-item) of the NEO-PI-R (240-item) to assess the Big Five personality traits (Neuroticism, Extroversion, Openness to Experience, Agreeableness, and Conscientiousness) in adults. It is a Likert-type, self-report, rating scale. It provides T-scores ($M = 50$; $SD = 10$). Reliability coefficient data for the NEO-FFI range from .86 to .95 across the five-factor domains (Botwin, 1995). The NEO-FFI and the NEO-PI-R have an extensive library of research supporting their use as personality assessments (Costa & McCrae, 2011). The participants completed the NEO-FFI in a group with an examiner present.

Slosson Intelligence Test-Revised, Third Edition (SIT-R3): The Slosson Intelligence Test-Revised, Third Edition (SIT-R3; Slosson, Nicholson, & Hibpshman, 2002) was designed to give a quick estimate of intellectual ability. It provides IQ Deviation scores ($M = 100$; $SD = 16$). Internal consistency coefficients range from .88 to .97 and test-retest as .96.

WJ-III: ACH, Reading Fluency: The Woodcock-Johnson Tests of Achievement-Third Edition (WJ-III: ACH; Woodcock, McGrew, & Mather, 2001) provides assessment

data across multiple areas of achievement. For the purposes of this study, only the Reading Fluency subscale was included. According to the technical manual (McGrew, Shrank, & Woodcock, 2007), the Reading Fluency subscale measures “reading speed (and) semantic processing speed” (pg. 19). It provides IQ Deviation scores ($M = 100$; $SD = 16$). Test-retest reliability data from the same manual provides a correlation coefficient of .88 and .94 with internal consistency data of .94. The WJ-III: ACH Reading Fluency subtest Form B was given by a trained, graduate student examiner in a one-on-one setting.

This subtest includes a series of timed, True / False statements that do not require advanced knowledge to answer the question. If the individual can read, they should know how to respond. For example, a question may read, “A cow goes oink-oink” [not an actual test item]. Although the items do require basic knowledge to answer, none of the information in the items is complex. The respondents should be able to pull the answers from general information known to most people (McGrew, Shrank, & Woodcock, 2007)

Data Analysis

Standard linear regression analysis was first performed to examine if any of the personality domain scores on the NEO-FFI (Neuroticism, Extroversion, Openness, Agreeableness, and Conscientiousness) predicted reading fluency scores on the WJ-III: ACH Reading Fluency. A follow-up hierarchical regression analysis was then conducted to examine if and how intellectual ability (entered first) might influence the regression model.

Results

Table 1 and Table 2 provide information on the descriptive statistics. In Table 2,

positive correlations for Openness and negative correlations for Neuroticism were found statistically significant for both individual and group administrations of the WJ-III: ACH, Reading Fluency. No other statistically significant correlations were found.

Table 3 provides data from two separate regressions run using NEO-FFI subtests as predictors for performance on the WJ-III: ACH Reading Fluency. Results indicated that the overall model was significant ($R^2 = .125$; $F(5,83) = 2.370$, $p < .05$) and the personality variable of Openness predicted Reading Fluency scores ($b = .376$, $\beta = .291$, $t(83) = 2.701$, $p = .008$). A follow-up hierarchical regression was then conducted where Intellectual Ability was entered first, followed by Openness. Results showed that both Model I and Model II were significant ($R^2 = .054$; $F(1,86) = 4.917$, $p < .05$ and $R^2 = .133$; $F(2,85) = 6.504$, $p < .05$ respectively). Further, review of Model II showed that although Openness ($b = .282$, $\beta = .285$, $t(85) = 2.776$, $p = .007$) was found significant, Intellectual Ability was not ($p = .08$).

Discussion

Seated within De Raad and Schouwenburg's (1996) framework, the current study offers insight into the relationships between personality and reading fluency. In terms of content, or which personality traits are correlatively important, the least surprising was the positive relationship found between Openness and reading fluency. Previous research demonstrates Openness as having positive correlations with general achievement (Farsides & Woodfield, 2003; Nofle and Robins, 2007; Tok & Morali, 2009), general reading skills, and cognitive ability (Beaujean, et al. (2011)). However, there were some surprising findings. The first was the lack of a relationship between Conscientiousness and reading fluency. This was unusual because previous research has consistently found

positive relationships between academic skills and Conscientiousness (Chamorro-Premuzic & Furnham, 2008; Nofle and Robins, 2007; Tok & Morali, 2009; Wagerman & Funder, 2007). Further, the negative relationship found between reading fluency and Neuroticism was also inconsistent with previous literature (Beujean, et al., 2011).

From the perspective of function, the authors of the current study can only use related research to hypothesize the functions that these personality domains play in increasing / decreasing reading fluency skills. Although it is possible that the positive relationship between Openness and reading fluency may be more related to the third variable of intelligence than it is to achievement (Ackerman & Heggstad, 1997; Ashton, et al., 2000; Austin, et al., 2002), current findings would suggest otherwise. When the variance accounted for by cognitive ability was removed in the current study, Openness was still found to positively predict reading fluency. This may be because of the already established relationships between Openness and learning motivation (Farsides & Woodfield, 2003; Tempelaar, Gijsselaers, van der Loeff, & Nijhuis, 2007), or it may be more related to the specific decision-making (Bidjerano & Dai, 2007) nature of the reading fluency subtest used in the study.

It is more difficult to hypothesize the unexpected lack of a relationship between Conscientiousness and reading fluency. Although other types of achievement (e.g., GPA, achievement striving, and task-oriented learning) have previous research linking them to Conscientiousness (Barrick & Mount, 1991, Barrick, Mount, & Strauss, 1993; Conard, 2006; Furnham, Chamorro-Premuzic, & McDougall, 2003; Schmit & Ryan, 1993), it is possible that the unique nature of reading fluency may inhibit these relationships. As there is no other research on personality and reading fluency, it is left to the current

researchers to address the function that Conscientiousness plays in the sub-parts of the construct (i.e., speed by accuracy, guessing, and prosody). Research has been inconsistent for what role (if any) that Conscientiousness plays in speed by accuracy (Dickman & Meyer, 1988; Socan & Bucik, 1988). Similarly, there has been inconsistent research on the relationship between Conscientiousness and guessing (Ávila & Torrubia, 2004; Kubinger & Wolfsbauer, 2010). Although Keller (2005) did not find a relationship between Conscientiousness and prosody, it is possible that these findings are inconclusive due to the lack of replication in this study. Therefore, without conclusive research to support a different theory, it is the current researchers' belief that the lack of Conscientiousness as a predictor may be due to a wash-out effect generated by combining all of these factors (speed by accuracy, guessing, and prosody). For example, someone who wants to get every item correct may be slower than someone willing to guess; however, they may also be more accurate.

Finally, the unexpected negative relationship between reading fluency and Neuroticism was also not consistently supported by the literature. Although Neuroticism was not found to have a relationship to general reading (Beujean, et al., 2011) or speech prosody (Keller, 2005), it has been found to be related to other reading fluency related variables (speed by accuracy and guessing). However, as with Conscientiousness, the relationship between Neuroticism and speed by accuracy had inconsistent research support (Dickman & Meyer, 1988; Socan & Bucik, 1988). And, also as before, research on Neuroticism and guessing was inconsistent (Ávila & Torrubia, 2004; Kubinger & Wolfsbauer, 2010). Again, the current researchers hypothesize that the unexpected negative relationship may be caused by a combination of factors. For example, it is

possible that individuals who feel the need to check and re-check their work before moving on to the next item will suffer in the area of speed, while these same individuals may be slow to respond (or unwilling to guess) for fear of getting an incorrect answer.

In terms of value, these findings indicate that including a personality inventory with a traditional battery of tests may be useful in intervention planning for individuals with reading fluency problems. For example, interventions would be very different for individuals who lack phonemic awareness as the primary cause of their reading fluency deficits than for individuals whose low scores are more due to personality variables such as Neuroticism or Openness. If the issue appears to be based on a dispositional variable of personality, such as high levels of neuroticism (e.g., anxiety and nervousness), then the intervention provided may need a different focus. Specifically, anxious individuals perform more poorly on tests when they know they are being timed (Morris & Liebert, 1969), thus the intervention specialist might want to focus on prosody, guessing, and accuracy instead of speed by a visible stop-watch.

The current study has a few limitations that should be addressed. First, the sample was restricted because it consisted solely of students within a College of Education. Therefore, the problems found in the Beaujean et al. (2011) study may apply to this study as well. In addition, the current study only examined one reading fluency score, semantic processing speed (McGrew, Schrank, & Woodcock, 2007). Other areas of reading fluency (e.g., prosody and automaticity) should be evaluated separately in future studies to break out which areas are specifically linked to which personality traits.

References

Ackerman, P. L., & Heggstad, E. D. (1997). Intelligence, personality, and interests:

- Evidence for overlapping traits. *Psychological Bulletin*, 121(2), 219-245.
- Ashton, M.C., Lee, K, Vernon, P.A., & Jang, K. L. (2000). Fluid intelligence, crystallized intelligence, and the openness / intellect factor. *Journal of Research in Personality*, 34, 198-207.
- Ausubel, D. P. (1968). *Educational psychology: A cognitive view*. New York: Holt, Rinehart and Winston.
- Austin, E. J., Deary, I. J., Whiteman, M. C., Fowkes, F. G. R., Pedersen, N. L., Rabbitt, P., & McInnes, L. (2002). Relationships between ability and personality: Does intelligence contribute positively to personal and social adjustment. *Personality and Individual Differences*, 32, 1391-1411.
- Ávila, C., & Torrubia, R. (2004). Personality, expectations, and response strategies in multiple-choice question examinations in university students: A test of Gray's hypotheses. *European Journal of Personality*, 18, 45–59.
- Barrick, M. R. & Mount, M. K. (1991). The big five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, 44, 1-26.
- Barrick, M. R., Mount, M. K. & Strauss, J.P. (1993). Conscientiousness and performance of sales representatives: Test of the mediating effects of goal setting. *Journal of Applied Psychology*, 78, 715-722.
- Beaujean, A., Firmin, M. W., Attai, S., Johnson, C. B., Firmin, R. L., & Mena, K. E. (2011). Using personality and cognitive ability to predict academic achievement in a young adult sample. *Personality and Individual Differences*, 51(6), 709-714.
- Bidjerano, T., & Dai, D. (2007). The relationship between the big-five model of personality and self-regulated learning strategies. *Learning and Individual*

- Differences, 17, 69-81.
- Brandt, J. D. (1975). Internal versus external locus of control and performance in controlled and motivated reading-rate improvement instruction. *Journal of Counseling Psychology*, 22(5), 377-383. doi:10.1037/h0077146
- Botwin, M. D (1995). Review of the NEO Personality Inventory-Revised. In the *Mental Measurement Yearbook*. Lincoln, NE: University of Nebraska Buross Institute of Mental Measurements.
- Chamorro-Premuzic, T., & Furnham, A. (2008). Personality, intelligence and approaches to learning as predictors of academic performance. *Personality and Individual Differences*, 44, 1596-1603.
- Clay, M. M., & Imlach, R. H. (1971). Juncture, pitch, and stress in reading. *Journal of Verbal Learning and Verbal Behavior*, 10, 133–139.
- Cohen, J. (1992). A power primer. *Quantitative Methods in Psychology*, 112(1), 155-159.
- Conard, M. (2006). Aptitude is not enough: How personality and behavior predict academic performance. *Journal of Research in Personality*, 40(3), 339-346.
- Costa, P. T., Jr., & McCrae, R. R. (1992). Revised NEO Personality Inventory (NEO-PI-R) and NEO Five Factor Inventory (NEO-FFI): Professional manual. Odessa, FL: Psychological Assessment Resources.
- Costa, P. T., Jr., & McCrae, R. R. (2011). NEO Inventories: Bibliography for the NEO Personality Inventory – 3 (NEO-PI-3), Revised NEO Personality Inventory (NEO-PI-R), and NEO Five Factor Inventory – 3 (NEO-FFI-3). Retrieved from <http://www4.parinc.com/Products/Product.aspx?ProductID=NEO-FFI-3>
- De Raad, B. & Schouwenburg, H. C. (1996). *Personality in learning and education: A*

- review. *European Journal of Personality*, 10, 303-336.
- Dickman, S. J., & Meyer, D. E. (1988). Impulsivity and speed-accuracy tradeoffs in information processing. *Journal of Personality and Social Psychology*, 54(2), 274.
- Dowhower, S. L. (1987). Effects of repeated reading on second-grade transitional readers' fluency and comprehension. *Reading Research Quarterly*, 22, 389-406.
- Dowhower, S. L. (1991). Speaking of prosody: Fluency's unattended bedfellow. *Theory Into Practice*, 30(3), 165-175.
- Durand, M., Hulme, C., Larkin, R., & Snowling, M. (2005). The cognitive foundations of reading and arithmetic skills in 7-to 10-year-olds. *Journal of Experimental Child Psychology*, 91(2), 113-136.
- Farmer, M. E., & Klein, R. M. (1995). The evidence for a temporal processing deficit linked to dyslexia: A review. *Psychonomic Bulletin & Review*, 2(4), 460-493.
- Farsides, T., & Woodfield, R. (2003). Individual differences and undergraduate academic success: The roles of personality, intelligence, and application. *Personality and Individual Differences*, 34, 1225-1243.
- Francis, L. J., & Montgomery, A. (1993). Personality and school-related attitudes among 11-to 16-year-old years. *Personality and Individual Differences*, 14(5), 647-654.
- Fuchs, L. S., Fuchs, D., Hamlett, C. L., Walz, L., & Germann, G. (1993). Formative evaluation of academic progress: How much growth should we expect? *School Psychology Review*, 22, 27-48.
- Fuchs, L. S., Fuchs, D., Hosp, M. K., & Jenkins, J. R. (2001). Oral reading fluency as an indicator of reading competence: A theoretical, empirical, and historical analysis.

- Scientific Studies of Reading, 5(3), 239–256.
- Furnham, A., Chamorro-Premuzic, T. & McDougall, F. (2003). Personality, cognitive ability, and beliefs about intelligence as predictors of academic performance. *Learning and Individual Differences*, 14, 49-66.
- Furnham, A., Monsen, J., & Ahmetoglu, G. (2009). Typical intellectual engagement, Big Five personality traits, approaches to learning, and cognitive ability predictors of academic performance. *British Journal of Educational Psychology*, 79, 769-782.
- Gates, A. I. (1941). The role of personality maladjustment in reading disability. *The Pedagogical Seminary and Journal of Genetic Psychology*, 59(1), 77-83.
- Holland, D. C., Dollinger, S. J., Holland, C. J., & MacDonald, D. A. (1995). The relationship between psychometric intelligence and the five-factor model of personality in a rehabilitation sample. *Journal of Clinical Psychology*, 51, 79–88
- Jenkins, J. R., Fuchs, L. S., van den Broek, P., Espin, C., & Deno, S. L. (2003). Sources of individual differences in reading comprehension and reading fluency. *Journal of Educational Psychology*, 95, 719–729.
- John, O. P., & Srivastara, S. (1999). The big-five trait taxonomy: History, measurement, and theoretical perspectives. In L. Pervin and O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed.). New York: Guilford.
- Katzir, T., Kim, Y., Wolf, M., O'Brien, B., Kennedy, B., Lovett, M., & Morris, R. (2006). Reading fluency: The whole is more than the parts. *Annals of Dyslexia*, 56(1), 51-83.
- Keller, B. (2005). Speech prosody, voice quality and personality. *Logopedics Phoniatrics Vocology*, 30(2), 72-78. doi:10.1080/14015430500256543

- Kirby, J. R., & Das, J. P. (1977). Reading achievement, IQ, and simultaneous-successive processing. *Journal of Educational Psychology*, 69(5), 564-70.
- Klauda, S. L., & Guthrie, J. T. (2008). Relationships of three components of reading fluency to reading comprehension. *Journal of Educational Psychology*, 100(2), 310-321.
- Kubinger, K. D., & Wolfsbauer, C. (2010). On the risk of certain psychotechnological response options in multiple-choice tests: Does a particular personality handicap examinees? *European Journal of Psychological Assessment*, 26(4), 302-308.
- Kuhn, M. R., & Stahl, S. A. (2003). Fluency: A review of developmental and remedial practices. *Journal of Educational Psychology*, 95, 3-21.
- LaBerge, D., & Samuels, S. J. (1974). Toward a theory of automatic information processing in reading. *Cognitive Psychology*, 6, 293-323.
- McCloy, C. H. (1936). A factor analysis of personality traits to underlie character education. *Journal of Educational Psychology*, 27(5), 375-387.
- McCrae, R. R. (1996). Social consequences of experimental openness. *Psychological Bulletin*, 120, 323-337.
- McGrew, K. S., Schrank, F. A., & Woodcock, R. W. (2007). Technical Manual. Woodcock-Johnson III Normative Update. Rolling Meadows, IL: Riverside Publishing.
- Morris, L. W., & Liebert, R. M. (1969). Effects of anxiety on timed and untimed intelligence tests: Another look. *Journal of Consulting and Clinical Psychology*, 33(2), 240.
- Noftle, E. E., & Robins, R. W. (2007). Personality predictors of academic outcomes: Big

- five correlates of GPA and SAT scores. *Journal of Personality and Social Psychology*, 93, 116-130.
- Poropat, A. E. (2009). A meta-analysis of the five-factor model of personality and academic performance. *Psychological Bulletin*, 135(2), 322-338.
- Samuels, S. J. (1968). Effect of word associations on reading speed, recall, and guessing behavior of tests. *Journal of Educational Psychology*, 59(1), 12.
- Schmit, M. J. & Ryan, A.M. (1993). The big five in personnel selection: Factor structure in applicant and non-applicant populations. *Journal of Applied Psychology*, 78, 966-974.
- Schreiber, P. A. (1980). On the acquisition of reading fluency. *Journal of Reading Behavior*, 12, 177-186.
- Schutte, N. S., & Malouff, J. M. (2004). University student reading preferences in relation to the big five personality dimensions. *Reading Psychology*, 25(4), 273-295.
- Schwanenflugel, P. J., Hamilton, A. M., Kuhn, M. R., Wisenbaker, J. M., & Stahl, S. A. (2004). Becoming a fluent reader: Reading skill and prosodic features in the oral reading of young readers. *Journal of Educational Psychology*, 1, 119–129.
- Slosson, R. L., Nicholson, C. L., & Hibpshman, T. L. (2002). *Slosson Intelligence Test – Revised, Third Edition*. East Aurora, NY: Slosson Educational Publications, Inc.
- Socan, G., & Bucik, V. (1998). Relationship between speed of information-processing and two major personality dimensions—extroversion and neuroticism. *Personality and Individual Differences*, 25(1), 35-48.
- Swanson, H. L., & Alexander, J. E. (1997). Cognitive processes as predictors of word

- recognition and reading comprehension in learning-disabled and skilled readers: Revisiting the specificity hypothesis. *Journal of Educational Psychology*, 89(1), 128.
- Tempelaar, D. T., Gijssels, W. J., Schim van der Loeff, S., & Nijhuis, J. F. H. (2007). A structural equation model analyzing the relationship of student achievement motivations and personality factors in a range of academic subject-matter areas. *Contemporary Educational Psychology*, 32(1), 105-131
- Tinker, M. A. (1946). Review of 'Reading Difficulty and Personality.' *Journal Of Applied Psychology*, 30(5), 571-572. doi:10.1037/h0050737
- Tirre, W. C., & Dixit, S. (1995). Reading interests: Their dimensionality and correlation with personality and cognitive factors. *Personality and Individual Differences*, 18(6), 731-738.
- Tok, S., & Morali, S. L. (2009). Trait emotional intelligence, the big five personality dimensions and academic success in physical education teacher candidates. *Social Behavior & Personality: An International Journal*, 37, 921-931.
- Torgesen, J. K., & Davis, C. (1996). Individual difference variables that predict response to training in phonological awareness. *Journal of Experimental Child Psychology*, 63(1), 1-21.
- Wagerman, S. A., & Funder, D. C. (2007). Acquaintance reports of personality and academic achievement: A case for conscientiousness. *Journal of Research in Personality*, 41, 221-229.
- Wechsler, D. (1943). Non-intellective factors in general intelligence. *Journal of Abnormal and Social Psychology*, 38, 101-103.

Woodcock, R. W., McGrew, K. S., & Mather, N. (2001). Woodcock-Johnson III Tests of Achievement. Itasca, IL: Riverside.

Young, A. R., & Bowers, P. G. (1995). Individual differences and text difficulty determinants of reading fluency and expressiveness. *Journal of Experimental Child Psychology*, 60, 428 – 454.

Table 1

Descriptive Statistics for NEO-FFI and WJ-III: ACH Reading Fluency

Tests Administered	Descriptive Statistics	
	Mean	Standard Deviation
NEO-FFI		
Neuroticism	50.96	10.45
Extroversion	54.11	12.02
Openness	52.29	11.03
Agreeableness	49.11	12.28
Conscientiousness	48.08	10.16
WJ-III: ACH Reading Fluency		
Individual Administration	104.92	10.53
SIT-R3		
Total Standard Score	98.28	10.96

Note. NEO-FFI: NEO Five Factor Inventory; SIT-R3: Slosson Intelligence Test Revised, 3rd Edition; WJ-III: ACH = Woodcock Johnson Tests of Achievement, Third Edition.

Table 2

Correlation Statistics for NEO-FFI, SIT-R3, and WJ-III: ACH Reading Fluency

Tests	NEO-FFI					SIT-R3	WJ-III
	Neurot	Extra.	Open.	Agree.	Consc.	Total	ACH RF
Administered	.						
NEO-FFI:							
Neuroticism	1.00						
Extroversion	-0.26*	1.00					
Openness	-0.10	0.30**	1.00				
Agreeableness	-0.10	0.28**	0.07	1.00			
Conscientious	-0.20	0.04	-0.02	0.10	1.00		
SIT-R3	0.09	-0.06	0.18	-0.11	-0.01	1.00	
WJ-III: ACH RF	-0.09	0.06	0.28**	0.06	0.14	0.24*	1.00

Note. NEO-FFI: NEO Five Factor Inventory; Slosson Intelligence Test Revised, 3rd Edition; WJ-III: ACH RF = Woodcock Johnson Tests of Achievement, Third Edition Reading Fluency. * = $p < .05$. ** = $p < .01$