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Determining Which Personality Traits Predict GPA Best in Middle and High School Students at Anderson County Schools

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UNIVERSITY HONORS PROGRAM

SENIOR PROJECT - APPROVAL

Name: KELLY MICHELE BUTCHER

College: BUSINESS ADMINISTRATION Department: MANAGEMENT

Faculty Mentor: JOHN LOUNSBURY (PSYCHOLOGY)

PROJECT TITLE: DETERMINING WHICH PERSONALITY TRAITS

PREDICT GPA BEST IN MIDDLE AND HIGH SCHOOL

STUDENTS AT ANDERSON COUNTY SCHOOLS.

I have reviewed this completed senior honors thesis with this student and certify that it is a project commensurate with honors level undergraduate research in this field.

Signed: , Faculty Mentor

Date: 5-6-03

Comments (Optional):

UNIVERSITY HONORS PROGRAM
SENIOR PROJECT - PROSPECTUS

Name: Kelly Michele Butcher

College: BUSINESS ADMINISTRATION Department: MANAGEMENT

Faculty Mentor: JOHN LOUNSBURY (PSYCHOLOGY)

PROJECT TITLE: ASSESING STUDENTS IMPROVEMENT IN
"FUTURE EMPLOYABILITY" RANKING FROM YEAR ONE TO
YEAR TWO OF A SIX-YEAR LONGITUDINAL STUDY.

PROJECT DESCRIPTION (Attach not more than one additional page, if necessary):

Projected completion date: 5-8-03

Signed: Kelly Butcher

.....
I have discussed this research proposal with this student and agree to serve in an advisory role, as faculty mentor, and to certify the acceptability of the completed project.

Signed: , Faculty Mentor

Date: 4-1-03

Return this completed form to The University Honors Program, F101 Melrose Hall, following your first presentation in the Senior Project Seminar.

The main purpose of this project is to examine the data collected by Resource Associates, Inc. for year two of a six year longitudinal study on the “Future Employability” of its students to determine if the subjects have improved from year one on the dimensions being measured. These dimensions include the Big Five (conscientiousness, agreeableness, openness, extroversion, and emotional stability) and a measure of work drive, which was measured by using the Personal Style Inventory for Adolescents in three different samples. The implications of these findings for the school will also be assessed. A second purpose of this project is to help further validate the Personal Style Inventory for Adolescents ability to predict GPA in adolescents.

**Determining Which Personality Traits Predict GPA
Best in Middle and High School Students at
Anderson County Schools**

**University Honor's Project
Spring 2003**

**By
Kelly Butcher
John Lounsbury- Faculty Mentor**

Abstract

Determining which personality traits predict GPA best in middle school and high school students.

By Kelly Butcher
John Lounsbury, Faculty Mentor

The main purpose of this study was to examine the data collected by Resources Associates, Inc. for year two of a six-year longitudinal study on the “Future Employability” of its students. The study is being used to determine if students have improved their rankings based on cut-off scores deemed acceptable for Human Resource selection tests using personality measures. 1,097 students from Anderson County Schools were assessed using the Personal Style Inventory for Adolescents on the big five personality dimensions (Extroversion, Conscientiousness, Agreeableness, Openness, and Emotional Stability) as well as on tough-mindedness, aggression, work drive and optimism. Results showed no significant changes in low scores from year one to year two, suggesting that the current curriculum is not fostering the development of desirable personality traits.

The second purpose of this study was to help further validate the Inventory’s ability to predict GPA and to determine which personality traits more strongly predicted GPA for these students. Correlation analysis showed that the strongest predictor overall of GPA was work drive with a correlation of .367. Aggression was another strong predictor (-.350). Conscientiousness, which was hypothesized to be a strong predictor, was only successful for predicting GPA in middle but not high school students. Also, all personality dimensions, with the exception of work drive, showed more predictive power for middle school than high school students. This result could be due to several factors such as class difficulty increasing, greater involvement in extracurricular activities that detract from studying, or lack of career path after graduation. In middle school students, by measuring dimensions such as work drive, aggression, and conscientiousness, teachers and counselors may better predict which students will need more assistance in maintaining good grades. Curriculum changes are needed to help foster the development of the more desirable personality traits in middle school so that the overall level of employability of graduating seniors will increase in the future.

Introduction

Resource Associates, Inc. is participating in a six-year longitudinal study to assess the “future employability” of middle and high school students at Anderson County School. To assess this, Resource Associates has been using *The Personal Style Inventory for Adolescents* to measure personality traits and is using cut-off scores based on those from acceptable human resource employability tests that use personality dimensions. As well as being able to assess how employable the students are, Resource Associates, Inc. hopes to be able to show strong correlations and predictive abilities of the personality traits in relation to GPA, behavior problems, and attendance.

The Personal Style Inventory for Adolescents measures the Big Five personality dimensions (Extroversion, Openness, Conscientiousness, Emotional Stability, and Agreeableness) along with Work Drive, Aggressiveness, and Tough-mindedness. The first personality dimension measured is extroversion, which is associated with such traits as being sociable, gregarious, assertive, talkative, and active. Some specialists interpret this dimension as measuring two basic components, ambition and sociability (Gatewood and Field 2001). The second dimension, emotional stability (from the negative pole), is characterized by being emotional, tense, insecure, nervous, excitable, apprehensive, and easily upset. Agreeableness is the third dimension and is measured using traits such as being courteous, flexible, trusting, good-natured, cooperative, forgiving, softhearted, and tolerant. Conscientiousness, the fourth dimension, is characterized by traits such as being responsible, organized, dependable, planful, willing to achieve, and persevering. The fifth and final dimension measured in the Big Five is Openness to New Experience, which involves such traits as being imaginative, cultured, curious, intelligent, artistically

sensitive, original, and broad minded (Gatewood and Field 2001). Other characteristics measured by the Inventory include Work Drive, Assertiveness, and Tough-mindedness. Work Drive measures one's disposition to work for long hours at assigned tasks and responsibilities. Aggression measures one's combative tendencies. Tough-mindedness measures how analytical, realistic, objective, and unsentimental the person is when making judgments and drawing conclusions about what needs to be done.

Literature Review/Previous Work

“A trait is a temporally stable, cross-situational individual difference (Heffner 2001).” Currently, one of the most used methods of studying these personality traits is through the use of the five-factor model known as the Big Five Dimensions of Personality. The Big Five Dimensions were developed using factor analysis of a numerous self and peer reports on personality related adjectives and also through the use of questionnaire items. The Big Five itself is divided into dimensions, rather than types, which means that people can vary on them and that most people do not fall on either extreme but somewhere between them. Also, the factors themselves are fairly stable over a 45-year period beginning in young adulthood (McCrae and Costa 1996). Each dimension measures numerous related traits and these traits are partly inherited and partly developed through socialization. The traits identified in the Big Five are universal, having been identified in several other cultures besides the United States, and knowing where one scores on these dimensions can help one better understand their own behavior process (McCrae and Costa 1996).

Most research done on the Big Five personality dimensions focuses on its impact on adults, with most applications used for things such as employee selection. These dimensions represent traits that are relatively stable over time and as such can help predict how a person will respond to situations on the job. Human Resource Departments, then, can identify which traits are necessary for each job in a company to be successful and use a personality inventory test to help determine if applicants meet these necessary requirements. The main problem in using personality testing in employee selection is identifying which specific trait relates to the job and making sure the questions asked single out that particular trait (Gatewood and Field 2001).

While most research does focus on adults, there is developing pool of evidence of how personality testing can be applied to adolescents, such as its ability to predict intelligence, behavior problems, school performance, future career success, coping, social competence, and attendance. Most of this research, however, focuses primarily on college students, with less emphasis on middle or high school students. Of the research that has been done on adolescents, though, there are some common findings. Conscientiousness, for example, has been positively correlated with academic performance (Graziano and Ward 1992) and intelligence (John et al., 1994). Conscientiousness has also been found to be negatively correlated with attention problems (Victor 1994) and juvenile delinquency (John et al. 1994). Teacher-reported measures of conscientiousness have been positively correlated with GPA (Digman and Inouye 1986) and negatively correlated with procrastination (Lay et al. 1998). Another dimension, Openness, has been correlated with high IQ scores and good school performance (Parker and Stumpf 1998). It has also been found, then, that students

aspiring to higher levels of education are characterized by higher Openness and Conscientiousness (Rottinghaus *et al.* 2002). Also, Extraversion has been linked with social competence (Graziano and Ward 1992) and direct-problem solving (Medvedova 1998). Finally, Agreeableness has been connected with low levels of juvenile delinquency (Robins *et al.* 1994) and less daily conflicts (Graziano, Jenson-Campbell, and Finch 1997).

Overall, Conscientiousness has been found to be the most important correlate and predictor of academic performance. Interestingly, Chammoro and Furnham state that “The positive association between academic performance and Conscientiousness may be simply attributed to the hard-working, organized and ambitious nature of highly conscientious individuals. Further, each of the sub-scales of Conscientiousness (i.e., competence, order, dutifulness, achievement striving, self-discipline, and deliberation) can be theoretically related to performance, not only in academic but also in occupational settings (2003).”

Another important aspect of studying personality dimensions involves understanding how personality traits develop. It is known that some traits of personality are inherited while others are socially developed (McCrae and Costa 1996). Psychologists need to be able to determine which traits can be developed and exactly how much impact socialization has on shaping them. This is especially important for Anderson County School because they wish to be able to make changes in their curriculum to better foster the development of positive traits. Studies show that personality traits become more stable and set as age increases. For example, Openness and Extraversion start to decline by the late 20s (Heffner 2001) and most traits become

stable by young adulthood (McCrae and Costa 1996). If these personality dimensions do prove to be good predictors of future performance and are also used for employee selection tests, then schools need to recognize the importance of these traits while students are still at the age where their traits are developing, so that they can be more easily altered. One of the best ways to help foster trait development is through learning. Learning can be defined as the process leading to relatively permanent behavioral change or potential behavioral change (Heffner 2001). By understanding how personality traits develop and how learning can impact their development, schools can play a more active role in shaping who young people become.

Children in middle school and high school are going through a period called adolescence. A major step in understanding how to teach these students is understanding what else they are going through developmentally. “Adolescence is a transitional stage between childhood and adult life and is characterized by rapid physical growth and psychological, mental and social maturity (Atkinson 1996).” In this stage, children are forced to deal with changes in their bodies and appearance, how to develop appropriate relationships and accept gender roles, and how to develop their attitudes and values for functioning in society. Part of this development is a child deciding how to react and behave in situations, which is determined in great part by the personality they come to develop. “Adolescence is thought to be the period of emotional upheaval and rebellion, sudden changes of mood, shifting ideologies and clashes with authority (Atkinson 1996).” How a child deals with this period helps shape the person they will become and the traits they will carry with them into adulthood. This is another reason understanding

personality development is so important so schools can help guide children through this period and help make them successful members of society.

Purpose

The purpose of this study is to examine the relationship between personality traits and GPA to determine the strength of the traits predictive power. The goal of this study, then, is to show that the Big Five Personality Dimensions can be used to predict the future GPA of middle and high school students, and that teachers and counselors can use this data to help signal “at risk” students at an earlier age. By triggering these students early on, they can hopefully help change disruptive traits that will detract from the students learning. A second purpose of this study is determine implications for curriculum changes based on conclusions of personality correlations. One of the goals of this six-year longitudinal study by Resource Associates, Inc. is to assess the “future employability” of Anderson County Students based on acceptable cut-off scores for personality tests used by Human Resource Specialists. By studying where their students are in relation to where they need to be, the school can focus on what changes need to be made to help better develop traits for which their students scored lower. Because it is a longitudinal study, the school will also be able to see not only how well their students are performing but also how well personality traits are developing from year to year. This will help the school gage the effectiveness of their current curriculum on developing traits and what areas need further development.

Hypothesis

The Big Five Personality Dimensions (Openness, Conscientiousness, Extroversion, Agreeableness, and Emotional Stability) will be able to predict GPAs in middle and high school students, with strong correlations in Openness and Conscientiousness.

Procedure

To gather data, Resource Associates, Inc. administered the *Personal Style Inventory for Adolescents*, a 118-item personality test, to 1,097 middle and high school students at Anderson County Schools. The school requested that the test be given in order to assess how employable their students were if they proceeded straight into the workforce instead of going to college, which most of these students do. The inventory used measures the Big Five Personality Dimensions as well as measuring Work Drive, Aggression, and Tough-mindedness. Once the data was collected and analyzed, students received individual feedback reports and teachers/counselors received copies of these reports. Students can use their individual feedback report to better understand their strengths and weaknesses in personality development. Teachers/Counselors, on the other hand, can use these results to help predict how the student will do in future studies.

Findings from year one, supplied by Resource Associates, Inc., help show insights into the makeup of the sample being used. In year one, over 40% of the sample scored low or below average on Emotional Stability. Also, one-fourth of the sample scored low or below average on conscientiousness and openness and half the sample had low work

drive. 40% of seniors were found to be ineligible for entry-level employment. This reflects that the sample used did not have overall well-developed personality traits.

Findings

The findings based on year 2 are as follows:

Table 1: Personality Dimensions Correlated with GPA

	GPA Middle	GPA High School	GPA Total
Agreeableness	.274	.268	.272
Conscientiousness	.349	.149	.229
Emotional Stability	.240	.195	.205
Extraversion	.296	.142	.207
Openness	.213	.156	.167
Aggression	-.312	-.374	-.350
Optimism	.295	.173	.234
Work Drive	.428	.343	.367
Tough-mindedness	-.216	-.175	-.194

The table shows that the strongest predictor of GPA overall is Work Drive with an overall correlation of .428. Aggression, surprisingly, is the second best predictor of GPA with an overall correlation of -.350. Conscientiousness, which was hypothesized to be the best predictor, was only a strong predictor for middle but not High school students. Openness to New Learning, while also thought to be a strong predictor, showed the weakest correlations in this study. Agreeableness had a fairly high correlation, showing that traits such as flexibility, tolerance, and being able to cooperate are important to learning. It is important to note that correlations for each dimension tended to decrease in

magnitude from the middle to the high school students for every dimension except for Aggression. One explanation for this is that, since most high school students in this study do not plan to attend college but enter directly into a technical field, their academic performance could reflect this lack of interest in furthering their education. Also, although many students knew they did not want to attend college, few actually knew exactly what they wanted to do. Since most people gain more motivation from actually finding their niche, the drop off in correlations could also reflect this lack of direction and motivation.

Table 2: Frequency of Low Scorers

	Middle School- Below Average	High School- Below Average
Agreeableness	11%	12%
Conscientiousness	14%	26%
Emotional Stability	19%	38%
Extraversion	3%	5%
Openness	7%	25%
Work Drive	18%	26%
Aggression	48%	45%
Tough-mindedness	34%	40%
Optimism	5%	7%

This table shows the frequency of scores that fell below the mean or average score for each dimension. While this table does not reflect the cut-off scores used for employee

selection, it does help to give a clearer picture of how the students were doing relative to each other. The table shows that the number of students who fell below average on each dimension increased with the exception of Aggression from middle to high school students. Low scores on Tough-mindedness and Emotional Stability signal that some changes in curriculum are necessary. Also, over a quarter of the students scored low on important employee predictors such as Conscientiousness, Work Drive, and Openness. Also, it is important to note that a very low percent of students scored below average on Extraversion, one of the few personality traits that schools currently emphasize developing.

Conclusions

Personality dimensions can be predictive of adolescent GPA, especially those of Work Drive, Aggression, and Conscientiousness. As such, personality assessment needs to begin in middle school when the traits show the highest correlations and predictive power. Aggression was unexpectedly found to be a strong predictor of GPA. In fact it was an even better predictor overall in this study than Conscientiousness. This actually makes sense, though, because students who are less prone to act out in class or cause conflict are the ones who are more likely to devote that energy into their studies. Work Drive is also a good predictor of GPA. This is probably true because those who are willing to work hard at activities to see them through to their completion are usually the same ones that make better grades on them. People who tire easily with a project and lack the motivation to finish it thoroughly will often do more poorly on the assignment. The strong correlation with the agreeableness dimension reflects that schools need to do

more to foster cooperation and flexibility. This could be done through the use of more group assignments that force interaction and consensus to get the task done successfully.

The high percentages of students who fell below average reflect that major curriculum changes are needed. Also, the fact that the overall number of low scores on dimensions did not improve from year one to year two reflect, not only are many students unemployable, but the school currently seems to be doing little to develop positive traits over time. The low scores in Emotional Stability, for example, reflect that the school needs to focus some of its energy on the development of “emotional intelligence.”

Emotional Intelligence is the ability to regulate and control one’s emotions. In some new job selection tools, emotional intelligence is much more predictive and useful than intelligence itself because emotional intelligence reflects how the person will regulate their emotions and react in given situations. One way to go about doing teaching this is to do more role-playing exercises where students can see how different people react in varying situations and pick out the ones that they think performed the best. Once the students have seen which behaviors are the most beneficial, they can then begin to learn how to develop those same skills. Role-playing will be more helpful to them because people in general are more committed to ideas/goals that they realize for themselves rather than ones they are told.

The changes made to curriculum need to begin in middle school because that is when personality development is at its peak. Many studies have been done on personality development in adults and in infants, but how personality develops and changes in adolescents is uncertain. It is, however, known that once people hit adulthood

their personality traits tend to become more stable as people become more comfortable in who they are and set in their patterns of behavior.

In this sample, half the students plan to go straight into the work force after graduation, but they are still unclear about what they want to do. This “Lack of Direction” could be one of the causes of the low scores. The school needs to address this problem by spending more time on career exploration and job previews. If the students have a clearer picture of where they are headed and what they want, their academic performance might improve as they realize what is required to achieve these goals. This idea can be seen in the behavior of college students. Freshman GPAs tend to be much lower for a student, but once they decide on a major, their GPAs tend to improve because they are taking classes of interest or requirements needed to do their profession. Middle and High schools can also take advantage of this by helping encourage the exploration of career opportunities and future direction early on so as to keep the student motivated toward a goal they have set for themselves.

While many of the personality traits did show predictive value, they are of little use unless the school knows how to use this information. Counselors and teachers need to be trained on how to interpret and use the feedback reports to signal for students who might need more academic assistance. Personality assessments have become so common in today’s society that many people do not realize that some of them actually do have reliability and validity while others are virtually useless. The school needs to be trained to understand which tests are actually useful and how the personality traits identified can be utilized successfully. Just like in job selection, the school has to identify which traits

are necessary for academic and social success in their school and then help “screen” their students to decide which ones need assistance in developing those traits.

Hopefully, as more research is done in the field of personality traits and GPA, then personality can become more useful at predicting GPA than TCAP or ACT/SAT testing. Many students today complain of how those tests are not reflective of a student’s actual intelligence or in how well they will do in college. These students claim that so much pressure is put on the student to do well on these tests, that they suffer from test anxiety or other problems that interfere with getting accurate intelligence assessments. Also, because the questions are constantly changing, a student might simply “luck out” with an easier test than a different student had to take. All of these problems with current assessments of intelligence for college admittance suggest that investigation is needed in an alternative, or at least supplemental, predictor of college performance. With future research in personality testing, the Big Five dimensions might just be able to be this alternative. Most people do not get stressed when taking a personality test and it is very hard to cheat on one. It would also cost the students far less money to take a personality assessment than an ACT/SAT exam, and the results can be used not only to predict future GPA, but also other academic factors as well.

One of the most interesting findings in this study was that less than seven percent of students overall scored below average on the extraversion dimension. This is important to note because it reflects how schools have, in fact, affected this personality dimension. Society, as a whole, shows that one must be fairly extroverted in order to succeed. Schools, for example, now require a significantly greater number of oral presentations and group projects than in the past. As a result of this new trend, students

are being geared toward being more comfortable in groups or in front of the class. This, then, shows how society and schools have transformed children overall to be more extraverted. This information is beneficial because it helps show that unhealthy behaviors can be corrected through socialization of accepted ones. Behaviors are the manifestations of personality traits. By changing the behavior, over time, one will also alter the trait itself. Also, this shows that traits themselves can be altered, which means that they are not strictly inherited as some psychologists believed.

The overall curriculum would benefit from several changes. As mentioned, career planning and “emotional intelligence” development through role-playing are some suggestions. Another change needs to be made to increase the students’ openness to new learning. If students are not interested in learning about new things, then they will most likely not readily accept any changes made in the curriculum, making it much harder to implement. This dimension is a priority, though, not just because it is needed to accept curriculum changes, but also because it is a necessary ingredient for children to want to learn. Some ways openness can be enhanced is by starting new clubs or activities at the school, having guest speakers on different subjects, or by taking more field trips that will expose the students to different things that might be of interest. Also, general changes in curriculum could involve increased emphasis on communication, problem-solving, and math-reasoning skills that help foster personality development.

Recommendations for Future Work

Obviously much more research needs to be done in the field of the relationship between personality dimensions and GPA, especially in relation to adolescents. Other

studies should try to involve several different schools from surrounding areas instead of just one county so as to have a more well-rounded population. In this study, most students had the same background and the sample was possibly skewed in the fact that over half did not plan to attend college. As a general rule, those who have the greatest academic success are the ones who want to continue on into higher education. The fact that most subjects in this sample do not wish to continue could possibly explain why some overall dimension scores were so low.

As this particular longitudinal study continues, the school needs to try harder to keep track of graduating seniors in order to see if predictions of employability were accurate. If students in this area are geared more toward technical fields and they can find jobs that they want, then maybe the school is able to prepare their students for the life that they want. The school has to be careful, however, to make sure that the reverse is not true, and that students are only taking for those jobs because they are the only ones the school has prepared them to do. By having more job previews and exploration, the school can see if the interest in varying jobs and thus preparation for them increases over time.

Another area that needs more research is in the area of adolescent personality development. Much work is done in the infant development and how adult personality dimensions alter, but little research has been done on how students develop and change in the middle and high school. Better understanding of these developments will help schools better understand the position they need to take in order to help foster these developments before they become more stable. When teachers know how and when

certain traits develop, then can then know how to teach and socialize accepted ones needed for success, as has been done with the extraversion dimension.

Because the test being used to evaluate personality in this study is a newer test developed strictly for use for adolescents, more research needs to be done into how effective and valid it is. While the test did prove reliable and valid in this region, it has yet to be tested in other cultures and countries. Also, other adolescent inventories should be developed so as to have comparisons as to which ones assess traits the best and why.

Also, more research needs to be done to better establish which traits best predict which academic measures. This study revealed that work drive and aggression were the top predictors, with conscientiousness coming in third. In most previous studies, while not done with an adolescent sample, conscientiousness was shown to be the best predictor. More research, then, needs to go into what role aggression can play in predicating as well as deciding on the openness to new learning dimension's ability to predict, considering it is very controversial in most studies. This study found no strong correlation, but others studies have found strong predictive power. Also, year two of this study did not look at any gender differences, since no significant findings were found in year one of the study, but future research might want to further investigate to see if this is true for other samples. Typically, girls in infancy develop faster than boys, but at some point boys catch up. Finding this point where development levels equal off would be very beneficial.

Finally, future work needs to be done on how well these personality traits predict GPA in comparison to other measures, such as standardized tests. Many students and administrators are unhappy with having to use measures such as standardized tests for

admissions or as predictors for performance, but they are forced to use them because they have very few reliable alternatives. If research can be done to further validate personality variables and establish acceptable cut-off scores, such as those used in employee selection tests, then administrators might have a viable, as well as less expensive, alternative to standardized tests.

Work-Cited Page

- Atkinson, Rita L., et al. *Hilgard's Introduction to Psychology*. 12th ed. Forth worth: Harcourt Brace College Publishers, 1996.
- Chamorro-Premuzic, Tomas and Adrian Furnham. "Personality predicts academic performance: Evidence from two longitudinal university samples." *Journal of Research in Psychology* 2003.
- Digman, J.M. and J. Inouye. "Further Specification of the Five Robust Factors of Personality." *Journal of Personality and Social Psychology*. 50 (1986): 116-123.
- Gatewood, Robert D. and Hubert S. Field. *Human Resource Selection*. 5 ed. Philadelphia: Harcourt College Publishers, 2001.
- Granziano, W. and D. Ward. "Probing the Big Five in Adolescence: Personality and Adjustment During a Developmental Transition." *Journal of Personality*. 60 (1992): 425-439.
- Granziano, W., L. Jenson-Campbell, and J. Finch. "The Self as a Mediator Between Personality and Adjustment." *Journal of Personality and Social Psychology*. 73 (1997): 392-404.
- Heaven, P.C.L. "Personality and Self-reported delinquency: Analysis of the Big Five Personality Dimensions." *Personality and Individual Differences*. 20 (1996): 47-54.
- Heffner, Christopher L. "Psychology 101". *AllPsych Online*. www.allpsychonline.com 2001.
- John, O.P., et al. "The 'Little Five': Exploring the Nomological Network of the Five-Factor Model of Personality in Adolescent Boys. *Child Development*. 65 (1994): 160-178.
- Lay, C. et al. "The Relation of Trait Procrastination to the Big-Five Factor Conscientiousness: An Assessment with Primary-Junior School Children Based on Self-Report Scales." *Personality and Individual Differences*. 25 (1998): 187-193.
- Medvedova, Luba. "Personality Dimensions-Little Five-and their Relationships with Coping Strategies in Early Adolescents." *Studia Psychologica*. 5 (1998): 261-265.
- McCrae, R.R. and P.T Costa Jr. "Toward a new generation of personality theories: Theoretical contexts for the five-factor model." *The five Factor Model of Personality: Theoretical perspectives*. New York: Guilford, 1996.

- Parker, W.D. and H. Stumpf. "A Validation of the Five-Factor Model of Personality in Academically Talented Youth Across Observers and Instruments." *Personality and Individual Differences*. 25 (1998): 1005-1025.
- Robins, R. *et al.* "Major Dimensions of Personality in Early Adolescence: The Big Five and Beyond." *The Developing Structure of Temperament and Personality from Infancy to Adulthood*. Hillsdale: Lawrence Erlbaum, 1994.
- Rottinghaus, Patrick J. *et al.* "Educational Aspirations: The Contribution of Personality, Self-Efficacy, and Interests." *Journal of Vocational Behavior* 61.1 (2002): 1-19.
- Victor, J.B. "The Five-factor Model Applied to Individual Differences in School Behavior." *The Developing Structure of Temperament and Personality from Infancy to Adulthood*. Hillsdale: Lawrence Erlbaum, 1994.