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# School achievement, personality and interests at gymnasium and college levels

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## Abstract

The present study approaches the issue of school achievement at gymnasium and high school levels. The participants are 366 gymnasium and high school students (medium age 16.1 years, SD 1.80) who were tested with a complex battery made of eight intelligence tests, together with Big Five personality questionnaire and Holland's Self-Directed Search (SDS). According to the model of Holland's structure of interests, it is expected that the realistic type should provide the biggest ratio of underachieved people while the social type the biggest ratio of overachieved people. The research confirms these hypotheses and opens several new directions of investigating school achievement.

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*Keywords:* achievement; intelligence; interests; gender; age differences.

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## 1. Introduction

School underachievement is a typical loss of an important human potential through its progressive going out of educational system. The phenomenon of underachievement consists in the deep discrepancy between individual cognitive potential – usually medium and over medium level – and school results which are much under this cognitive potential (Ausubel & Robinson, 1969). Two types of underachievement have been identified. The first, which apparently seems to be less dangerous, is when children achieve on occasion, when the mood takes them, and these children are known as situational underachievement. The second type, chronic underachievement, seems to be a very serious problem for school, society, their families, and of course for themselves. Interrelations between the two types of underachievement are not clearly established. Although over 80 percent of underachievers are boys, the

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problem of school achievement is important for girls too, because many overachieved girls have fallen victims to the expectations of society and their families (Jackson, 1998).

The purpose of this study was to determine the personality correlates which are involved in the school achievement of gymnasium and high school students. We were also interested in identifying association between personality traits and structure of interests for school under- and overachieved students. Thirdly, this study tries to answer the question if the school underachieved students have a specific pattern of cognitive structure, the fluid component of intelligence appearing to be more strongly associated with underachievement than the crystallized one. Secondly, I wanted to assess the weight which school underachievement has with reference to the investigated students' gender and age. The basic hypothesis of the study was that school underachievement is more clearly defined for feminine gender than masculine gender, the phenomenon implying specific connotations from the areas of personality, interests and from the cognitive one.

## **2. Materials and methods**

### *2.1. Participants*

Participants were 366 students, out of which 30 in the 6<sup>th</sup> grade, 30 in the 8<sup>th</sup> grade, 134 in the 9<sup>th</sup> grade and 172 in the 11<sup>th</sup> grade from different programs of study, e.g. humanities, sciences, vocational, with an average age of 16.1 years and a SD of 1.80. Participation was voluntary, based on parental consent, approval of school inspectorate and of school principals. First, the students and their parents were informed about the purpose of the study, the benefit it is supposed to offer. They were also assured about confidentiality of results. The testing was made collectively for seven tests of intelligence, personality and interests questionnaires. To evaluate intelligence, there was used a comprehensive battery consisting of eight tests: Matrices (Bonnardel 53), Block Design (Clinciu, 2014), Draw a Man Test, Bender-Gestalt Standard, Verbal Recombination, Words Definitions, Arithmetic and Number Series. According to Cattell's model of intelligence, these eight tests can be regrouped in a component of Fluid Intelligence and another of Crystallized Intelligence. Only Block Design test was performed individually by each pupil at the end of the testing session, under the control of two test-supervisors. During the Block Design testing session, the students filled in the NEO PI-R questionnaire (Costa and McCrae, 1996) and Holland's SDS.

### *2.2. Procedure*

In a preceding study (Clinciu, 2014), I provided detailed information about the manner of determining school achievement which I also used in the present research where I proposed a working method different of Ausubel and Robinson's (1969). I did not determine school achievement in terms of ratio, as the authors mentioned above did. My calculation formula of school achievement was in terms of difference between Grade Point Average (GPA) and IQ, both expressed in z scores. When this difference is negative (intelligence overcomes GPA), we can speak about underachievement, in the opposite situation (GPA overcomes intelligence), we speak about overachievement. Thus, the difference between the two critical levels, symmetrical around the mean ( $M \pm 0.50SD$ ), defines the school achievement area. The graphic expression of this working formulae leads to an accurate identification of the three groups of close size which are defining for school underachievement, achievement and overachievement. As indicators for academic performance there was used the Grade Point Average of the last school semester, and the grade marks for the Romanian language and Mathematics.

## **3. Results**

A comparative analysis on the way of school achievement evolution for boys and girls was made taking into account the ages of the beginning, middle and end of adolescence. The synthetic expression of this dynamics is shown below in Fig. 1. For the representatives of both genders the age of adolescence beginning marks a higher weight of school overachievement, but this conclusion must be taken cautiously because the sub-representation of

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