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**Psychology of subculture: Phenomenology and Contemporary
Tendencies of Development**

**PERSONAL CHARACTERISTICS OF HIGH ABILITY
ADOLESCENTS WITH DIFFERENT LEVELS OF ACADEMIC
ACHIEVEMENT**

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Abstract

The study aimed to examine the cognitive and non-cognitive personal characteristics in high ability adolescents with excellent and below the average academic achievements, in comparing to their typically developing peers. Two groups of secondary school students participated (ages 11 through 13 years, boys and girls equally). The first group included 160 high ability students, selected with the teachers' ratings and the cognitive abilities tests. The second group included 120 unselected students of the whole classes. We used the following methods: Teachers' Ratings of Intelligence; Cognitive Abilities Tests, including the verbal, quantitative, and non-verbal scales; Questionnaires of Quest for Knowledge, Hope for Success, Fear of Failure, General and Academic Self Concept, Anxiety, and Academic Achievements (school grades). The results obtained revealed the significant differences of high ability students from their ordinary peers in cognitive and non-cognitive personal characteristics, including superiority in academic success. However, although the cognitive abilities scores are recognized as useful predictors of academic performance, some of gifted students, mostly boys, showed a discrepancy between actual and expected levels of academic achievements and were identified as underachievers. In spite of high tested cognitive abilities, the performance and personality characteristics of the underachievers were closed to that in the ordinary students. The research data analysis had shown that solving problems of the gifted underachievers calls for the new approaches both to revealing the high ability adolescents having difficulties in their study and to establishing certain strategies for overcoming such difficulties.

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Keywords: Abilities, achievement, adolescents, motivation, personality, self-concept.



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1. Introduction

The academic success of adolescents affects their self-concepts, needs, interests, emotions, and attitudes to them from parents, teachers, and peers. Though the high ability students, as a rule, are more academically successful, than their typically developing fellows, some of them do not perform as well academically as their potential indicates they can. Such students steady display a serious mismatch between excellent cognitive ability assessments or test scores and actual achievements (i.e. grades), so they often are named as high ability or gifted underachievers (Reis & McCoach, 2002; Siegle, 2013; Ziegler & Stoeger, 2012).

The phenomenon of underachievement is complex and meets with serious conceptual problems. Additionally, underachieving students constitute a very diverse population, so their identification is uncertain. Meanwhile, in order for them to reach their potential, it is important that their intellectual strengths are supported together their weaknesses are accommodated appropriately (Siegle, 2013; Tan, Tan, & Surendran, 2016). A better path to define underachievement is to consider the various components: cognitive, motivational, emotional, social, and other personality features (Abu-Hamour & Al-Hmouz, 2013; Landis & Reschly, 2013; Reis & McCoach, 2002). The concept of underachievement, though often discussed, is still vaguely defined in the professional literature. The psychological characteristics attributed to talented underachievers often diverge and at times conflict each other, therefore more research is needed on these issues to understand how we can promote them to succeed.

2. Problem Statement

According to research data, some contributing factors to underachievement have been identified. Researchers attribute underachievement to a combination of several causes, including intrapersonal features such as motivational, emotional, self-esteem, and others (Reis & McCoach, 2002; Siegle, 2013; Tan et al., 2016). The literature has demonstrated the meaning of these variables for differentiation of underachievers among high ability students. At the same time, systematic studies on the underachievement problem in the Russian cultural context are deficient, despite high learning failure rates, especially among adolescents. There is a need for more the empirical studies to understand the nuances of underachievement in high ability students.

3. Research Questions

This study addressed the following questions:

3.1. Question 1

To what extent do intellectually gifted adolescents differ in their cognitive abilities, academic achievement and motivation, self-concept, and school anxiety from their typically developing peers?

3.2. Question 2

To what extent do excellent and low academic achievers differ from each other in their cognitive abilities, academic motivation, self-concept, and school anxiety, despite both having a high level of general intelligence?

4. Purpose of the Study

The study aimed to investigate the differences in cognitive abilities, achievement motivation, self-concept, and school anxiety between high ability and ordinary students as well as between high ability students with excellent and low academic achievements.

5. Research Methods

5.1. Participants

Two groups of secondary school students participated (ages 11 through 13 years, boys and girls equally). The first group included 160 high ability students, selected with the teachers' ratings and the cognitive abilities tests (the top 10%). The second group included 120 unselected students of the whole classes (Table 01).

Table 01. Numbers of the students in the different groups

Control group		High Ability Group		The High Ability Excellent Achievers		The High Ability Underachievers	
Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
60	60	80	80	15	25	33	9
120		160		40 (25 %)		42 (26,2 %)	

5.2. Measures

The following methods were used:

- Teachers' Checklist for Rating of Students' Intelligence.
- The Russian version of the Munich Tests of Cognitive Abilities for Highly Gifted Students. The tests include the verbal, quantitative, and nonverbal scales. The general intelligence score comes from summation of all scales.
- Questionnaires: Achievement Motivation (Hope for Success, Fear of Failure), Quest for Knowledge, General and Academic Self Concept, Anxiety (General Anxiety, Test Anxiety, Worry about School Grades, Instability of Thinking under Stress).
- Academic Achievements – School Grade Point Average.

All methods were developed in the Munich Longitude Study of Giftedness (Heller, 2010) and preliminary adapted to Russian sample.

Data analysis was carried out in SPSS 22. The independent *t* tests were performed to examine the mean differences in variables between intellectually gifted and ordinary students as well as between high ability students with excellent and low academic achievements.

6. Findings

Among 160 gifted students 40 were identified as excellent achievers (having the highest academic achievements in all subjects) and 42 as underachievers (having significantly below average academic achievements for the control group), that is, both numbers were about equal (Table 01). Meanwhile, the girls were prevalent among the excellent achievers, and the boys were prevalent among the underachievers.

6.1. Comparison of the high ability and control groups of adolescents

First we compared two groups with regard to ability levels (the high ability and the control groups). Descriptive statistics for academic achievement, cognitive abilities and general intelligence, and non-cognitive personal characteristics in these two groups, as well as their intergroup difference significances by t test are presented in Table 02. The results obtained reveal the significant differences between the high ability and control groups on almost all variables, except the insignificant differences on general and test anxiety, and general self-concept. Academic achievements and all cognitive abilities (verbal, mathematical, nonverbal, and general intelligence) as well as quest for knowledge, hope for success, and academic self-concept in the high ability group were significantly higher, compared to that in the control group. On the contrary, fear of failure and such anxiety manifestations, as worry about school grades and instability of thinking under stress, were significantly weaker in the high ability adolescents than in the control group.

Table 02. Differences in variables between the high ability and control groups of students

Variables	High ability		Control		t	p
	M	SD	M	SD		
Teachers' Index of Intelligence	2.97	0.93	1.53	0.85	13.45	.000
Academic Achievements	4.47	0.34	3.80	0.53	12.18	.000
Verbal Intelligence	37.67	5.10	29.60	5.07	13.10	.000
Mathematic Intelligence	27.52	5.11	20.72	6.44	13.38	.000
Non-verbal Intelligence	37.62	5.91	25.03	9.71	12.59	.000
General Intelligence	108.19	7.99	94.10	16.47	9.39	.000
Quest for Knowledge	24.64	6.42	21.08	6.79	4.44	.000
Hope for Success	6.92	1.93	6.45	1.94	2.27	.027
Fear for Failure	3.00	2.18	3.83	2.35	-3.02	.004
Test Anxiety	6.20	2.30	6.97	2.70	-2.06	.050
Worry about School Grades	18.43	4.86	22.65	7.20	-4.22	.000
General Anxiety	16.60	4.42	17.38	5.02	-1.35	.187
Instability of Thinking under Stress	10.34	3.43	11.77	3.91	-3.19	.003
Academic Self-Concept	29.13	4.54	26.25	3.76	5.79	.000
General Self-Concept	25.36	2.88	25.55	2.81	-0.55	.583

Note: M = mean; SD = standard deviation

6.2. Comparison of excellent achieving and underachieving high ability adolescents

In the next step, we distinguished between the high ability adolescents who were identified as excellent achieving and those identified as underachieving by their academic success (Table 3). The results show that teachers for the most part did not consider the abilities of their underachievers to be high, whereas the ability tests evidenced them. Exception is the verbal intelligence, because the scores are significantly higher in excellent achievers, comparing to underachievers. Successful students also demonstrate meaningfully stronger quest to knowledge, hope of success, and academic self-concept, but weaker fear of failure and worry about school grades than their unsuccessful peers, whose variables are similar to that in the control group.

Table 03. Differences in variables between the excellent achieving and underachieving students

Variables	Excellent achieving		Underachieving		t	p
	M	SD	M	SD		
Teachers' Index of Intelligence	3.37	0.88	2.04	0.48	4.89	.000
Academic Achievements	4.78	0.19	3.49	0.31	5.21	.000
Verbal Intelligence	40.23	4.40	36.33	3.85	4.26	.000
Mathematic Intelligence	28.22	5.37	26.11	6.96	1.54	.132
Non-verbal Intelligence	39.11	5.29	38.60	5.44	0.419	.672
General Intelligence	109.59	9.78	102.33	9.28	1.64	.120
Quest for Knowledge	23.48	6.91	18.50	5.92	3.51	.000
Hope for Success	7.62	1.93	6.63	1.92	2.33	.028
Fair for Failure	2.33	2.00	3.50	2.31	-2.42	.022
Test Anxiety	7.15	3.48	6.41	2.56	1.09	.285
Worry about School Grades	17.04	4.86	20.04	5.20	-2.41	.022
General Anxiety	17.08	4.67	15.15	4.94	1.71	.098
Instability of Thinking under Stress	9.11	2.94	10.22	3.30	-1.61	.123
Academic Self-Concept	31.46	3.38	25.44	6.72	4.46	.000
General Self-Concept	26.00	2.63	24.70	2.76	1.92	.055

Note: M = mean; SD = standard deviation.

The revealed differences between the high ability and ordinary students, between the excellent achieving and underachieving high ability student mean only group trends. The individual psychological investigation shows variety of displays of these trends in each case. Two types of underachievement were identified. The first is where adolescents have few long-term problems if they can get adequate help to overcome their difficulties. The second type of chronic underachievement is a much more serious problem. According to our results, about 80 % of identified intellectually gifted underachievers were boys, and the most of them had difficulties because of relative lagging on verbal abilities, compare to general intellectual development.

7. Conclusion

The results obtained indicated that high ability students exhibited statistically significantly different scores on 12 from 15 their variables, including academic achievements, cognitive abilities and non-cognitive personal characteristics. Overall, all revealed differences demonstrated advantages conducive to the academic success of intellectually gifted adolescents, as opposed to their average age peers. Nevertheless, among high ability students nearly 25 % underachievers were found to be consistent with data from other researches (Reis & McCoach, 2002; Ziegler & Stoeger, 2003). In spite of high tested cognitive abilities in gifted underachievers, they differed from their high achieving peers not only in poor academic performance, but also in non-cognitive personal characteristics. According to these characteristics, they were more like ordinary students than high ability ones: their scores were lower on hope for success, quest for knowledge, and academic self-concept, but higher on fear of failure and anxiety. Our findings are consistent with the results about the role of motivation, emotions, anxiety, self-perception, etc. in academic underachievement (Obergruesser & Stoeger, 2015; Tan et al., 2016).

Particular attention is attracted by the discrepancy between the levels of verbal abilities and other kinds of intellectual abilities as well general intelligence among underachievers. According to our data, the latter significantly differed from their high academic achieving peers by lower verbal test scores. The literature also evidences that verbal abilities have stronger correlation with academic achievement than nonverbal abilities, and the discrepancy between them can cause underachievement (Reis & McCoach, 2002). The data show that solving problems of the gifted underachievers calls for the new approaches both to revealing the high ability adolescents having difficulties in their study and to establishing certain strategies for overcoming such difficulties (Landis & Reschly, 2013).

In our study among excellent academic achievers were more girls than boys, but among underachievers were more boys than girls. It is consistent with the opinion that males are significantly more likely identified as gifted underachievers than females (Siegle, 2013; Tan et al., 2016). Meanwhile, in the mathematical performance males frequently out-perform females (Tan et al., 2016).

Prospects of the study are defined by need of expansion and diversity of research sample and methods, and qualitative (case-study) and quantitative analyses of cognitive and non-cognitive personality aspects in the context of age and gender.

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