

Psycho physiological and psychological peculiarities of gifted senior pupils, having psychological difficulties

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During the last ten years scientific interest in a gifted personality, without that society can't develop and solve numerous confronting tasks, has increased greatly. There is a prevailing approach in modern psychology, treating endowment as an integral quality of personality, that doesn't come to intelligence, creativity or cognitive functions. This quality is not initially programmed with genotype and it doesn't fatally depend on the conditions of the environment, but this is a dynamic characteristic. Endowment, as a systemic quality of personality, develops during the whole life of man [2, 7, 9, 10].

In psychological literature of recent years widely presented facts, indicating significant psychological difficulties that gifted children face during the process of education at comprehensive school [3, 6, 4, 5]. A firm opinion has formed in public conscience, according to which a gifted child, as usual, has "oddities". His behavior, manner of communication, etc. differ from his peers.

Actively carried out by Russian psychologists theoretical and experimental investigations of "endowment" phenomenon allow to conclude that gifted pupils form a group of psychologic-pedagogical risk, which is connected with experienced difficulties- communicative, volitional regulation, professional self-determination, perfectionism and etc. In psychological education of recent years the idea of "exclusive children" together with hyperactive and autistic has even spreaded on gifted ones [1, 8, 11, 12].

We can state the lack of empirical data, allowing to establish the main reasons that cause psychological difficulties and problems, appearing among gifted children during the process of education at comprehensive school. It is considered to be the most topical for gifted senior pupils, having psychological difficulties, because during the period of school leaving and university entering the fact of losing endowment signs often takes place. Besides, we consider children's Psycho physiological peculiarities are not enough investigated, as well as complex investigation of gifted senior pupils is also needed.

The aim of the conducted complex empirical study was to reveal psycho physiological, psychological and socially- psychological peculiarities of gifted senior pupils, having certain psychological difficulties.

These senior pupils had psycho physiological, psychological and socially- psychological peculiarities. Among psycho physiological peculiarities nerve system characteristics were stated - strength, flexibility and etc. (Tapping Test); characteristics of



temperament- objective and social ergonicity, plasticity, emotionality, tempo and indexes of temperament ("The structure of temperament questionnaire" by Rusalov V.M.). Cognitions were set forth among pupils' psychological peculiarities-level of intelligence ("Roven's progressive matrices") and nonverbal creativity ("The picture completion test" by Torens). Among socially- psychological peculiarities socially-psychological adoption was stated ("The Rodger's Diamond questionnaire").

A special questionnaire was developed where the degree of evidence of any difficulty varied from 0 to 21 points to reveal pupils' psychological difficulties–social inadaptability, perfectionism, low volitional regulation, difficulties of professional self-determination.

The use of standard computer methods of mathematical statistics ensured the reliability of the empirical study results. The comparative analysis of different mean values of observable variables between three groups of senior pupils, concerning each psychological difficulty, was carried out by means of Student's T- criterion. Each psychological difficulty was studied during the process of work. Statistical interconnection of the evidence degree of every observable difficulty with psycho physiological, psychological and socially- psychological peculiarities of senior pupils was identified by means of Spearman's analysis.

With the help of a specially developed among senior pupils questionnaire (for school pupils from the 9th-11th forms of lyceum №1, Rostov-on-Don) were revealed pupils, having difficulties in social adaptation, perfectionism, volitional regulation, professional self-determination.

All the pupils were divided into three prearranged groups according to the above-listed difficulties. The (1)st group was composed of the senior pupils with signs of endowment. The difficulty is marked among the representatives of this group. The (2)nd group was formed by the senior pupils with signs of endowment, but without any marks of difficulty. The representatives of the 3rd group were without any signs of endowment, but had this difficulty. Altogether 102 pupils aged 14-17 years were examined.

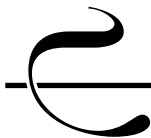
The aim of the complex empirical study was concretized in the following goals:

To carry out a comparative analysis of psycho physiological, psychological and socially- psychological characteristics of gifted senior pupils of all three groups, in regard to each observed difficulty.

To study the interconnection of each observed difficulty with psycho physiological, psychological and socially- psychological characteristics of gifted senior pupils from all three groups.

The results and their discussion. As a result of the carried out comparative analysis psycho physiological, psychological and socially- psychological characteristics of gifted senior pupils were displayed. These characteristics accompany each of observed psychological difficulties- social adaptation, perfectionism, low volitional regulation, professional self-determination. Those characteristics of senior pupils, whose numeric differences were statistically significant ($p \leq 0, 05$), comparing with all three groups of pupils, were placed below into the table.

Socially badly adapted pupils (both gifted children and pupils without strongly marked signs of endowment) have remarkably higher rates in social flexibility and social



tempo, than gifted pupils, not having psychological difficulties in social adaptation (Table 1, picture 1, picture 2). They have a collection of communicative programs, easily come into contact with other people, and easily switch to other people during the process of communication. They have communicative impulsivity and high speech tempo. These pupils are able to choose a proper word quickly. Since, these psycho physiological characteristics are not significantly different, comparing gifted and common pupils, those have difficulties in social adaptation, so we can conclude that high social flexibility and tempo are inherent in senior pupils together with difficulties of social adaptation and don't depend on presence or absence of endowment. Consequently, high social flexibility and social tempo can be regarded as characteristics, supporting difficulty of social adaptation regardless of presence endowment signs in pupils, possessing these characteristics.

Social emotionality and index of general emotionality are more significant among gifted pupils, regardless of difficulty of social adaptation. Such characteristics accompany exactly endowment (Table 1). Gifted pupils are highly emotionally sensitive to failures in communication.

Table 1

The results of comparative analysis of psycho physiological, psychological and socially- psychological characteristics of gifted senior pupils accompany social disadaptation

characteristics of temperament			
social plasticity	social tempo	social emotionality	index of general emotionality
1>2	1>2	1>3	1>3
3>2		2>3	2>3

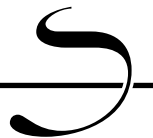
1–gifted senior pupils with difficulty of social adaptation

2 - gifted senior pupils without difficulty of social adaptation.

3 - senior pupils without any signs of endowment with difficulty of social adaptation

1. Thus, we can regard the total combination of social flexibility and social tempo together with high social and general emotionality as psycho physiological background of difficulty in the process of social adaptation for gifted senior pupils.

2. Such results, confronting, from the first sight with the expected ones, can be explained in the following way. Possessing high potential for effective communication and interaction with other people, gifted pupils have, as well, high communicative claims (their high social tempo can be regarded as a sign of their desire to achieve maximum results). That's why in the situations of interpersonal communication they probably define the goal at the breaking point of their abilities. Since, high social sensitiveness distinguishes them, consequently in case of failure they have strong emotional feelings. This makes them consider themselves socially unadapted. Probably we can regard the combination of high social flexibility and social tempo together with high social emotionality as a psycho physiological background of high claims, which during the process of motivation forming can lead to the situation, when a gifted senior student has difficulties, connected with social adaptation.



3. By means of carried out correlation analysis important backfeed of social adaptation, specific for gifted senior students, together with adaptation ($p \leq 0,05$) and internality was revealed. The inverse relation of difficulty of social adaptation with internality points out the fact that in case of communicative failure gifted children experience it, but they don't take all the responsibility for themselves. Therefore, they don't analyze the obtained negative communicative experience, that's why they don't gather a new one. This only reinforces their negative experience of social adaptation.

4. **Perfectionism** as a difficulty among gifted pupils can be identified with characteristics of temperament and cognitive peculiarities.

5. Gifted pupils, regardless of having perfectionism as a difficulty, differ from common pupils without any signs of endowment, but also experiencing the difficulty of perfectionism. Such gifted pupils have a lower social flexibility, higher emotionality and index of general emotionality, index of general disbalance (Table 2). They are highly sensitive to the divergence of the got and expected results of their actions, failures at work, but at the same time they are less touchy to the assessment of other people, failures in the situations of communication.

6. Intelligence of all the pupils, experiencing perfectionism is lower than intelligence of senior students, not having such difficulty (Picture 3, table 2).

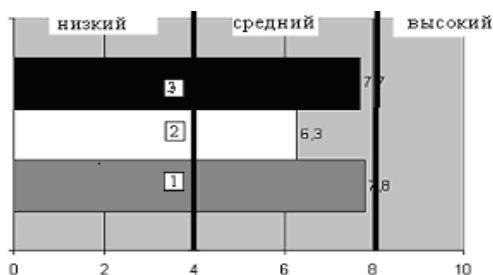
Table 2
The results of comparative analysis of psycho physiological, psychological and socially- psychological characteristics of gifted senior pupils accompany perfectionism

Cognitions	characteristics of temperament			
	social plasticity	emotionality	index of general emotionality	index of general disbalance
1<2	1<3	1<3	1<3	1<3
3<2	2<3	2<3	2<3	

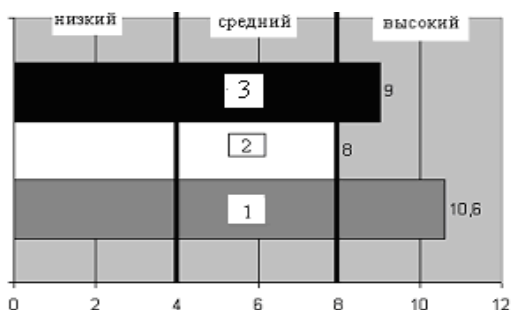
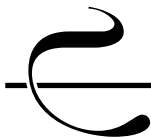
1 – gifted senior pupils with difficulty of perfectionism

2 – gifted senior pupils without difficulty of perfectionism

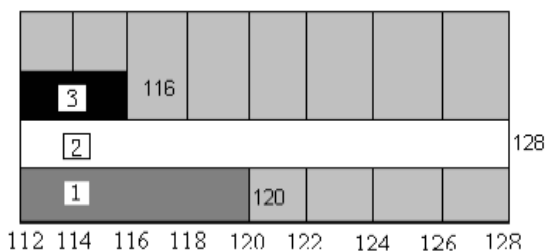
3 – senior pupils without any signs of endowment with difficulty of perfectionism



Picture 1. Statistically significant difference of social plasticity of 1- gifted senior pupils with difficulty of social adaptation, 2- gifted senior pupils without difficulty of social adaptation, 3- senior pupils without any signs of endowment with difficulty of social adaptation ($p \leq 0,05$)



Picture 2. Statistically significant difference of social tempo of 1- gifted senior pupils with difficulty of social adaptation, 2- gifted senior pupils without difficulty of social adaptation, 3- senior pupils without any signs of endowment with difficulty of social adaptation ($p \leq 0,05$)



Picture 3. Statistically significant difference of IQ level of 1- gifted senior pupils with difficulty of perfectionism, 2- gifted senior pupils without difficulty of perfectionism, 3- senior pupils without any signs of endowment with difficulty of perfectionism ($p \leq 0,05$)

As a result of carried out correlation analysis, specific for gifted pupils significant positive interconnection of perfectionism and rigidity of **nervous system was found** ($p \leq 0,01$). These senior pupils can't quickly reorganize their claims together with changing conditions. They can't quickly alter their behavior program. So, they fall apart and have strong negative emotions, facing a difficulty or new unexpected situation.

1. So, the combination of low social flexibility together with high objective and general emotionality, emotional disbalance, allied with intelligence, which level is not higher than 120 (IQ), can be regarded as a psycho physiological risk factor for the difficulty of perfectionism among gifted senior pupils.

2. Gifted children, experiencing **difficulty of volitional regulation**, differ from their peers in characteristics of temperament and cognitive peculiarities. Gifted pupils with this difficulty differ from their peers in lower objective speed, slowness of actions and index of social activity, as a complex indicator of social ergonicity, plasticity, tempo



and higher level of intelligence as well (Table 3, picture 4). Probably self-sufficiency has formed in interviewed gifted pupils because of high intelligence. Low speed of motor operations together with low social activity, poor orientation towards people become psycho physiological background of peak concentration and attention, keeping at the object of interest, for gifted senior pupils, having difficulty of volitional regulation.

3. Lower social tempo and poor index of general tempo differ pupils with low volitional regulation (both with noticeable and unnoticeable endowment) from gifted pupils, not having difficulties of volitional regulation (Table 3, picture 5, picture 6).

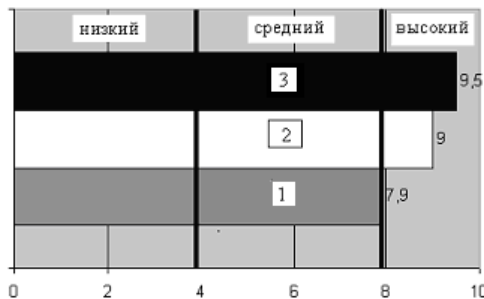
4. Among pupils with low rate of volitional regulation gifted pupils differ in higher objective emotionality and lower index of emotional disbalance (Table 3). These senior pupils are very sensitive to the divergence of anything planned and expected, failures. They lack self-confidence, feel anxiety, worry about the results of their actions. Synergy of high abilities and high motivation towards the activity within the bounds of such objective sphere, where pupils are gifted, creates conditions for keeping interest in this activity, attracting to it. So, it is complicated for pupils to change their activity and start working with other objects. Such situation is experienced inwardly as a difficulty of volitional regulation.

Table 3

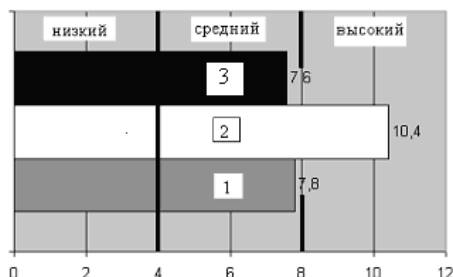
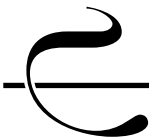
The results of comparative analysis of psycho physiological, psychological and socially- psychological characteristics of gifted senior pupils accompany difficulty of volitional regulation

characteristics of temperament						Cognitions
Tempo	Social tempo	Emo- tionality	index of gen- eral tempo	Index of emotional- ity disbalans	Index of social activity	IQ
1<2	1<2	1>3	1<2	1<3	1<2	1>2
1<3	3<2		3<2		1<3	1>3

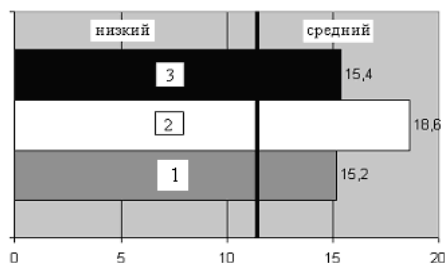
- 1 – gifted senior pupils with difficulty of volitional regulation
- 2 - gifted senior pupils without difficulty of volitional regulation
- 3 - senior pupils without any signs of endowment with difficulty of volitional regulation



Picture 4. Statistically significant difference of tempo level of 1- gifted senior pupils with difficulty of volitional regulation, 2- gifted senior pupils without difficulty of volitional regulation, 3- senior pupils without any signs of endowment with difficulty of volitional regulation ($p \leq 0,05$)



Picture 5. Statistically significant difference of tempo level of 1- gifted senior pupils with difficulty of volitional regulation, 2- gifted senior pupils without difficulty of volitional regulation, 3- senior pupils without any signs of endowment with difficulty of volitional regulation ($p \leq 0,05$)



Picture 6. Statistically significant difference of general tempo of 1- gifted senior pupils with difficulty of volitional regulation, 2- gifted senior pupils without difficulty of volitional regulation, 3- senior pupils without any signs of endowment with difficulty of volitional regulation ($p \leq 0,05$)

The results of correlation analysis allow us to state the existence of negative interconnection of difficulty of volitional regulation with nonverbal creativity ($p \leq 0,05$) among gifted children. We suppose that the development of nonverbal creativity among gifted people can assist in overcoming of difficulty in volitional regulation. Gifted pupils with the difficulty of professional self-determination differ from common pupils in better readiness for an action in the situation, where other pupils have poor acceptance (Table 4, picture 7, picture 9). They are marked with a desire to explore the objective world, thirst for activity, desire for toil intellectual work and manual labor, easiness of switching from one form of activity to another and desire for various kinds of activity. Being ready for different kinds of professional activity, they have difficulties in choosing future occupation, as they have problems of accepting other people. As far as all the modern professions suppose obligatory communication and interaction between people, the occupational choice of gifted senior pupils, having the analyzed difficulty, is coursed more by social factor. Index of pupils' general tempo together with the difficulty of professional self-determination is



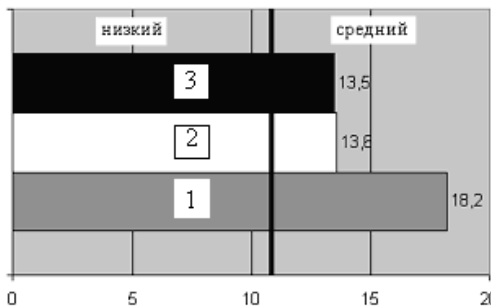
low and doesn't depend on marked endowment (Table 4, picture 8). They function slowly. Slowed speech and slow verbalization are characteristic features of them. They don't have high claims. Such tardiness, of course, complicates more the choice of professional activity.

Table 4

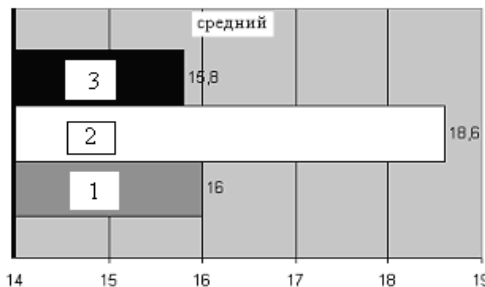
The results of comparative analysis of psycho physiological, psychological and socially- psychological characteristics of gifted senior pupils accompany difficulty of professional self-determination

characteristics of temperament		Social-psychological features
Index of general tempo	Index level of readiness for subject activity	Acceptance of others
1<2	1>2	1<2
3<2	1>3	1<3

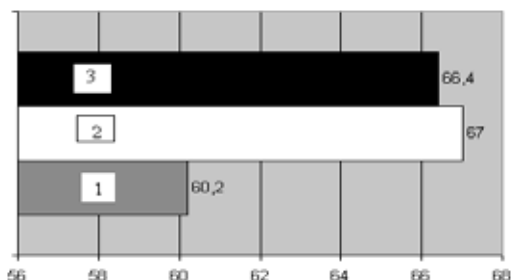
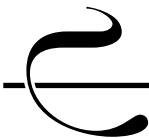
- 1 – gifted senior pupils with difficulty of professional self-determination
- 2 – gifted senior pupils without difficulty of professional self-determination
- 3 – senior pupils without any signs of endowment with difficulty of professional self-determination



Picture 7. Statistically significant difference of index level of readiness for subject activity of 1- gifted senior pupils with difficulty of volitional regulation, 2- gifted senior pupils without difficulty of volitional regulation, 3- senior pupils without any signs of endowment with difficulty of professional self-determination ($p \leq 0,05$)



Picture 8. Statistically significant difference of index of general tempo of 1- gifted senior pupils with difficulty of volitional regulation, 2- gifted senior pupils without difficulty of volitional regulation, 3- senior pupils without any signs of endowment with difficulty of professional self-determination ($p \leq 0,05$)



Picture 9. Statistically significant difference of index level of acceptance of others of 1 - gifted senior pupils with difficulty of volitional regulation, 2 - gifted senior pupils without difficulty of volitional regulation, 3 - senior pupils without any signs of endowment with difficulty of professional self-determination ($p \leq 0,05$)

By means of carried out correlation analysis, specific for gifted senior pupils negative interconnection between difficulty of professional self-determination and tempo ($p \leq 0,05$), and also index of adaptability were revealed. Disbalance was found among gifted pupils, having various psychological difficulties, between the blocks of programming and implementation of functional system, which is reflected in high plasticity and low tempo at the level of temperament characteristics. This can lead to ineffective results. Since gifted pupils possess high emotionality, they are extremely sensitive to this disbalance and experience it as a psychological difficulty. Another reason of experiencing difficulties is disbalance of opposite cognitive abilities, according to the degree of expression in a gifted child, and characteristics of temperament. This leads to the formation of high claims and impossibility to meet the goal because of low-grade temperament characteristics (plasticity or tempo). That's why psychological work with gifted senior pupils, focused on recognition of our psycho physiological peculiarities and formation of adequate self-rating can help to overcome psychological difficulties. The results of carried out empirical investigation of physiological, psychological and socially-psychological peculiarities of gifted pupils, having difficulties, allow us do the following.

1. Physiological, psychological and socially- psychological peculiarities have been found out, which are specific for both all tested gifted pupils in contrast to pupils without any signs of endowment, irrespective of experienced psychological difficulties, and all senior pupils, having certain psychological difficulties, regardless of endowment signs presence.

2. Gifted pupils unlike pupils without signs of endowment, regardless of experienced difficulties, have higher social general emotionality, index of emotionality, index of emotional disbalance and lower social flexibility. They are extremely sensitive to the feedback.

3. Regardless of endowment form, socially unadapted pupils differ from socially adapted in high social flexibility and social tempo. Senior pupils, experiencing perfectionism as a difficulty, differ from peers, not having such difficulties, in lower level



of intelligence. Pupils with difficulty of professional self –determination differ from senior pupils without this difficulty in lower index of general tempo.

4. Psycho physiological, psychological and socially- psychological peculiarities were found, which are specific for the gifted pupils, having certain psychological difficulties: lower objective type and index of social activity, as well as higher intelligence are specific for gifted senior pupils, having difficulty of volitional self-regulation. Gifted pupils, having difficulties of professional self-determination, differ from others in high readiness for activity in the situation, where low acceptance of other people takes place. The results of the work expand our knowledge about psycho physiological and psychological peculiarities of gifted senior pupils. The obtained results help to understand better and allow treat the problem of difficulties, which gifted pupils have at comprehensive school, in a new way. The obtained results can be used in research studies and practical work of psychologists, psycho physiologists and teachers that are interested in problems of education, upbringing and development of gifted children.

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