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Manifestations of Giftedness in Senior Preschoolers and Their Interest in Professions

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Abstract

This paper outlines the findings from an integrated diagnostic assessment of manifestations of giftedness in senior preschoolers and their interest in professions. The authors investigated the relationship between manifestations of a certain type of giftedness in children and their interest in a certain group of professions. The assessment of manifestations of giftedness was conducted based on a methodology developed by A.I. Savenkov. This methodology helps assess the presence of traits of the following 10 major types of giftedness: intellectual, creative, academic, pictorial, musical, literary, performing, technical, leadership, and sporting. The study of interest in professions was conducted based on E.A. Klimov's Differential-Diagnostic Questionnaire, which had been adapted for preschoolers. The study helped draw the following conclusions: (1) based on pedagogue and parent reports, the type of giftedness that is detected most often in senior preschoolers is the pictorial type, followed by sporting giftedness, and then leadership giftedness; (2) parent assessments of manifestations of giftedness in their children tend to be significantly higher than teacher assessments when it comes to pictorial, musical, literary, leadership, and sporting giftedness; (3) the number of preschoolers with multiple manifestations of giftedness (a high level on three or more types) is significantly larger than the number of preschoolers with manifestations of one-to-two types of giftedness; (4) gifted children tend to have a clear-cut interest in a certain group of professions; (5) there is a significant correlation (at the 0.01 level based on the Pearson correlation coefficient) between leadership giftedness (teacher assessments) and interest in professions within the 'Man – Man' group, between academic giftedness (teacher assessments) and interest in the 'Man – Technology' group of professions, and between creative giftedness (parent assessments) and interest in the 'Man – Technology' group of professions. The results could be utilized in implementing efforts to provide pedagogical support for and early vocational guidance to gifted children in kindergartens and institutions of supplementary learning for preschoolers.

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1. Introduction

A strategic objective that is helping ensure the development of Russia's intellectual potential is identifying and supporting gifted and talented children. This goal has found reflection in the national project 'Education', more specifically the following objective set out by the federal project 'The Success of Each Child' – "building an effective system for identifying, supporting, and developing the abilities and talents of children and youth that is founded on principles of fairness and universality and is aimed at the self-determination and vocational orientation of all students" (Pasport..., 2019).

Gifted and talented children are the object of special care in most regional education systems – in particular, that of Krasnodar Krai (Zakon..., 2006).

Gifted children ought be identified and vocational guidance and psychological-pedagogical support ought to be provided for them starting from preschool age, which has to do with a child's creative and cognitive activity peaking at senior preschool age and diminishing to a degree by school age. When children enter school, their activity tends to be increasingly regularized and adjusted to common norms, rules, and templates, which may very well cancel out manifestations of giftedness in them. It is also already late to begin providing the child with early vocational guidance at school, as during the period of preschool childhood a lack in the preschool educational institution and the family of pedagogical conditions required for successful early vocational guidance may result in the development in many children of unconstructive beliefs about the importance of work ("it's just a way to earn some money"), a negative attitude toward certain professions (mostly blue-collar jobs, many of which are always in demand in the region) and toward work in general (as something boring), unproductive models of participation in labor activity (inability to get satisfaction from work, work in an industrious and passionate manner, achieve the desired results patiently, take responsibility for the results, and work as part of a team), and a lack of confidence in their ability to perform various job tasks.

Identifying and supporting giftedness is, above all, necessary because it will enable a gifted child to employ their giftedness as much as possible in professional activity, with maximum benefit for society and with maximum personal satisfaction. However, at present the practice of preschool education is characterized by a number of issues in the areas of identifying gifted children, supporting them, and providing them with vocational guidance early on, which include the following:

– based on the findings from the authors' survey, 71.4 % of all kindergartens are not conducting any purposeful work on identifying and supporting gifted preschoolers, with this type of work mainly conducted by institutions of supplementary learning for children, which, obviously, cannot reach as many gifted children as kindergartens possibly could;

– most preschool institutions (66 %) identify giftedness without the use of psychodiagnostic methodologies that have been tested by researchers – mainly through observation by pedagogues during the process of interacting with children and through analysis of the outcomes of their activity, which does not make it possible to identify many hidden attributes and types of giftedness and increases the risk of non-objective results from diagnostic assessments;

– most preschool institutions do not differentiate the types of giftedness in children, maintaining that at preschool age only signs of general giftedness can be detected. This kind of approach increases the risk that a child will be left out of the circle of gifted children who are head and shoulders above their peers in practical types of activity (crafts, culinary arts, and other types of physical labor), in spiritual-moral development (being deeply sensitive to others' emotions and moods; being more empathic and compassionate than others), in sports, and in business (i.e. children with practical, sporting, leadership, social, and spiritual-moral giftedness);

– pedagogues and parents do not always link the development of giftedness in preschoolers with the child's interest in a certain group of professions. As a result, there may ensue the following two outcomes: (1) the parents may impose on the child a giftedness development scenario of their own, which may not match the child's interests; (2) giftedness may manifest in asocial forms

(e.g., stealing as an adolescent) if it is not channeled into an activity that the child enjoys, something that may potentially be associated with a future profession;

– in certain cases, the development of giftedness is not combined with the moral nurturing of the child, with giftedness being all the child's parents care about, which may result in the child turning into a selfish person;

– pedagogues and parents are not providing gifted children with assistance in resolving communication, socialization, and school adaptation issues that often face such children (Ratner, Gubaidullina, 2014; Wright-Scott, 2018); such issues may get worse and hinder self-actualization.

To help resolve the above issues in a more productive manner, the authors conducted a study of manifestations of giftedness and interest in professions in senior preschoolers and, based on the findings, formulated a set of practical recommendations on working with gifted and talented children for pedagogues in institutions of preschool learning. This paper shares the results from the authors' study and outlines the proposed practical recommendations.

2. Discussion

Identifying gifted children and providing them with psychological, pedagogical, and social support may be viewed as a topical subject of domestic (Belova, 2016; Bogoyavlenskaya, Bogoyavlenskaya, 2013; Il'in, 2009; Shadrikov, 1986; Shcheblanova, 2016; Yurkevich, 1996 et al.) and foreign (Dullaghan, 2012; Harrison, 2004; Jackson, 2003 et al.) pedagogical and psychological research, comparable in significance with resolving environmental issues and issues related to the implementation of cutting-edge digital and information technology. Researchers have explored preconditions for and signs of giftedness, its types, ways to identify and develop it, and ways to support gifted children and have developed various models and programs for identifying and supporting gifted children.

At present, psychology and pedagogy offer numerous theories of giftedness and over 130 definitions of the term, which leaves the phenomenon open to a wide range of possible interpretations. Scholar J. Smedsrud has suggested that the concept of giftedness is too multifaceted to try and provide insight into just using a couple of definitions (Smedsrud, 2020).

The authors' analysis helped identify the following three key characteristics of giftedness:

– one or several abilities in a child being distinguished by increased levels of development or one or several spheres of personality in a child being distinguished by considerable advancement when matched against generally accepted norms and compared with the child's peers (Cukierkorn et al., 2008; Panov, 2001; Teplov, 2009). For instance, researcher V.I. Panov views as the kernel of the phenomenon of giftedness in children high levels of development of one or several abilities in them based on which they develop the ability to achieve high results in socially significant types of activity (Panov, 2001);

– there being a link with activity, which suggests the possibility of fostering giftedness through engaging the child in the various socially significant types of activity that are aligned with the child's type of giftedness, including vocationally-oriented activity. For instance, B.M. Teplov describes this concept as "a fundamentally original combination of abilities that the possibility of achieving success in performing the various types of activity is dependent on" (Teplov, 2009);

– there being early manifestations, which is testimony to the need to identify and support giftedness starting from preschool age: "Gifted children are individuals whose capacity and proclivity for a certain type of activity are discovered early on in life" (Pedagogicheskaya entsiklopediya, 1991).

To various scholars, giftedness can be reduced to academic giftedness (advanced development of the cognitive sphere of personality and intellect, high IQ test results, and high academic progress) (Browder, 2010) or to general giftedness (high levels of creative ability, which determine the person's high achievements in various types of activity). The American Association for Gifted Children (AAGC) provides the following definition of giftedness: "Gifted children are those who show extraordinary abilities in one or more of the following fields: intelligence, academic performance, creative and productive thinking, communication, and leadership ability". There are foreign researchers (Laurie, Sharp, 2015; Olszewski-Kubilius, 2003; Nakano et al, 2016; Perleth et al., 2000; Sharp, Clemmer, 2015 et al.) who differentiate between gifted and talented children. Children with advanced artistic and motor abilities are not subsumed under gifted children and are included in the category of talented children instead.

The authors follow a broader understanding of giftedness, including in this category children with advanced abilities in various types of activity – both intellectual and creative (pictorial, musical, literary, performing, and constructing giftedness), sporting (sporting giftedness), practical (giftedness in crafts and physical types of labor), social (emotional, social, and spiritual-practical giftedness, when the person is distinguished by increased emotional responsiveness and advanced development of the spiritual-moral sphere), administrative (leadership giftedness), and business (entrepreneurial giftedness). This view is shared by scholars F.N. Kozyrev (Kozyrev, 2013), M.M. Piechowski (Piechowski, 1992), A.I. Savenkov (Savenkov, 2016), and others. This kind of approach makes it possible to fulfill the concept of humanistic treatment of a person, without focusing attention only on academic abilities and, accordingly, intellectual giftedness, which is in alignment with the latest standards, predicated on the competency-based approach (Federal'nyi..., 2013).

Some researchers are of the view that it is possible to identify and develop giftedness via engaging children in the types of activity that are related to the type of their giftedness. Other scholars (Gilford, 1995; Teplov, 2009; Thurstone, Thurstone, 1941 et al.) believe that it is possible to identify and develop giftedness via engaging children in creative activity that is not related to their abilities and type of giftedness. This idea is what J.P. Guilford's test is based on (Gilford, 1995). The position is expressed in L.L. Thurstone's multifactor theory of intelligence (Thurstone, Thurstone, 1941).

The authors are of the view that, taking into account the asynchronous nature of the development of the various spheres of personality at preschool age (Silverman, 2012), it is important to not just identify manifestations of general giftedness in a preschooler but also determine which sphere of personality and which abilities in them are characterized by increased, advanced development and try to engage them in the types of activity that match those abilities and the corresponding type of giftedness.

3. Materials and methods

The authors surveyed pedagogues and content specialists in preschool institutions in the city of Sochi (Russia) and conducted an integrated study of manifestations of the various types of giftedness in senior preschoolers and their relationships with one's interest in a certain group of professions.

The survey engaged pedagogues and content specialists in 10 preschool educational institutions in the city of Sochi: five kindergartens (Kindergarten No. 50, Kindergarten No. 84, Kindergarten No. 106, Kindergarten No. 109, and Sochi Kindergarten) and five centers of supplementary learning for preschoolers. The questionnaire included 12 questions aimed at establishing whether the facilities practice identifying and supporting gifted children; what methods they use to identify manifestations of giftedness in preschoolers; what types of giftedness they identify and develop in their educatees; what problems they face in identifying and supporting gifted children; whether they are interested in working with universities in this context.

The study of manifestations of the various types of giftedness in senior preschoolers and their relationship with one's interest in a certain group of professions engaged 80 children (ages 6-7) attending a preschool program and 80 parents of those children. The choice of this particular age group of preschoolers was associated with that, based on the findings from research studies conducted by several prominent psychologists (D.B. El'konin, L.S. Vygotsky, S.I. Rubinstein, V.S. Mukhina, N.A. Gordeeva, L.V. Kashcheeva, and J. Piaget), preschool age is characterized as an especially significant period for the formation of personality traits in a person and the emergence of a child's individuality. At 2.5-3 years of age, children begin to gain self-awareness and make their first steps in terms of vocational self-determination. By senior preschool age (6-7 years), children's interest in professions becomes more sustainable and deliberate. At 6-7 years of age, children take an active part in the various types of activity (e.g., pictorial, musical, acting, learning-and-cognitive, sporting, and labor), which helps detect manifestations of the various types of giftedness. While signs of giftedness can be identified at any stage in the preschool age period, many researchers view as ideal for testing the age of 5 to 8 years (Silverman, 2012).

As a basis for the study, the authors chose three kindergartens in the city of Sochi (Kindergarten No. 50, Kindergarten No. 109, and Sochi Kindergarten). The sample consisted of the following two major types of kindergartens working with neurotypical children (individuals with no

intellectual disabilities): general-development-type (Kindergarten No. 109 and Sochi Kindergarten) and combined-type (Kindergarten No. 50).

The sample consisted of roughly equal numbers of males (38 children – 47.5 %) and females (42 children – 52.5 %).

The group of participants was diverse in its ethnic makeup. The largest ethnic segment was represented by ethnic Russians (70.1 %), followed by Armenians (17.5 %), Ukrainians (7.5 %), Georgians (1.3 %), Kazakhs (2.4 %), and Serbs (1.2 %).

The participants belonged to various social groups (industrial workers, office workers, intellectuals, and housewives).

The participating children were selected at random.

The choice of diagnostic methodology was not accidental – it was governed by the objective of early identification of preschoolers with signs of giftedness. Therefore, the authors employed R.G. DeHaan and J. Kough' Talent Map in a version adapted for preschoolers and junior schoolchildren (ages 5-10) by A.I. Savenkov (Savenkov, 2000). The methodology makes it possible to assess the degree to which a preschooler is endowed with each of the following 10 types of giftedness: intellectual (intellectual operations), creative (outside-the-box, original thinking), academic (curiosity, broad-mindedness, being a good student), pictorial, musical, literary, performing, technical, leadership, and sporting.

A promising area in this context is the development of a program of psychological-pedagogical support for identified children. A program of this kind will include diagnostic procedures that will make it possible to monitor and adjust the pedagogical and psychological objectives of support for gifted preschoolers.

The questionnaire included 80 questions systematized across 10 relatively independent areas of children's behavior and activity. Each question was associated with a certain type of giftedness. The questionnaire was filled out by the child's educator and parent. They were to give an assessment of manifestations of signs of giftedness in the child on a scale of 2 (the trait assessed is well-developed, well-defined, and manifested often) to -1 points (more often there is manifested a trait that is opposite to the one assessed). The method involved tallying the points scored by the children based on pedagogue assessments and on parent assessments.

Depending on the number of points scored, each child was assigned one of the following levels of giftedness on each type:

– very high: 15-16 points;
– high: 13-14 points;
– medium: 8-12 points;
– below medium: 5-7 points;
– low: 0-4 points;
– absence of manifestations of giftedness: -1 – -8 points.

To assess interest in a group of professions, use was made of E.A. Klimov's Differential-Diagnostic Questionnaire (Klimov, 2014) in a version adapted for preschool age by N.A. Gordeeva and L.V. Kashcheeva (Gordeeva, Kashcheeva, 2017). The diagnostic assessment was conducted by students from Sochi State University pursuing a Master's degree in Psychological and Pedagogical Education as part of practical training. Each child had a student assigned to them whose job was to have an individual conversation with them. The child was asked to select from two statements (e.g., 'I like to look after pets' vs 'I like to play with toys'; 'I like to help sick people' vs 'I like to construct things to a layout or template'; 'I like to look at images in a book (postcards)' vs 'I like to look after plants').

The child's responses were entered by the student in a form and were classified under a certain group of professions. Next, for each child there was created a table listing the number of their choices on each group of professions. The objective was to establish which groups of professions the child had a high interest in (7-8 responses), a medium interest in (3-6 responses), and no interest in (0-2 responses).

To identify the correlations between pedagogue and parent assessments and between manifestations of giftedness and interest in a certain group of professions in a child, the data were processed using methods of mathematical statistics in IBM SPSS v.20. To process the data, use was made of the Pearson correlation coefficient.

4. Results

4.1. Results from the survey of pedagogues and content specialists in Sochi's preschool institutions

The respondents' answers indicated that purposeful work on identifying and supporting preschoolers with signs of giftedness is conducted mainly in the city's institutions of supplementary learning for preschoolers (linguistic and creative child development centers) (Figure 1).

Precisely half of the 28.6 % of kindergartens conducting work with gifted children are general-development-type kindergartens, and the other half are combined-type kindergartens. All of the 71.4 % of kindergartens not conducting work with gifted children are general-development-type kindergartens.

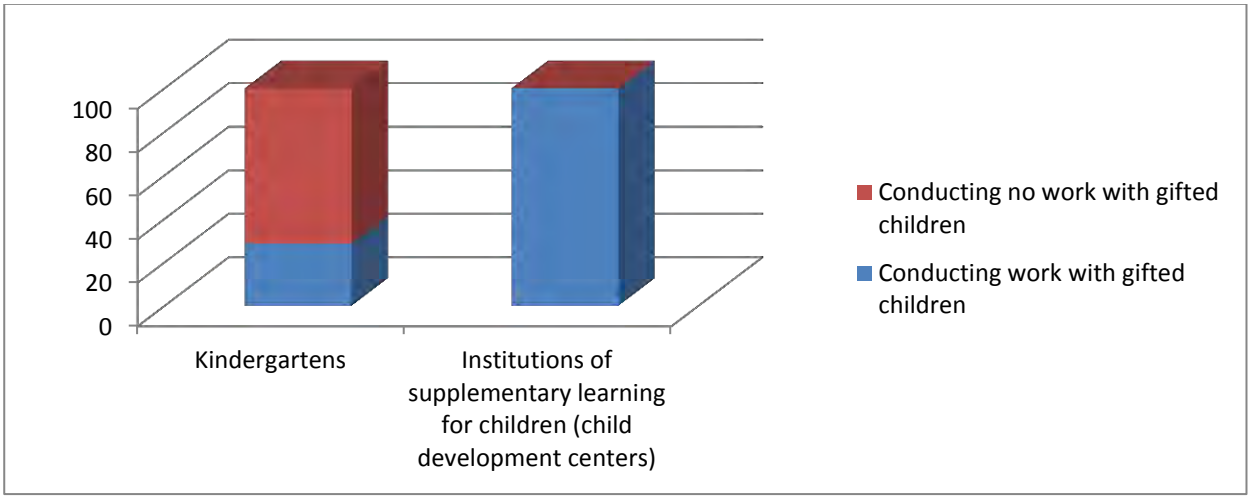

Fig. 1. Degree to which Sochi's preschool educational organizations are engaged in work with gifted children

The main objective behind this kind of work for the majority of preschool organizations (66 %) is to identify gifted children and create the conditions for the development of their giftedness, in 33 % – to meet the needs of the parents, and in 8 % – to get their educatees to win various municipal and regional contests.

For the most part, giftedness is identified as part of the educators' direct work with the children (observation, analysis of the outcomes of a child's creative work, and conversations with the parents). Just 33 % of the respondents were found to identify giftedness using special psychodiagnostic methodologies and tests.

50 % of the respondents said that gifted children are identified in the kindergarten by the educators, 58 % – by the psychologist (pedagogue psychologist), and 16 % – by other specialists.

All organizations conduct monitoring of child giftedness no more often than 1-2 times in a year.

For the most part, signs of giftedness are identified in children aged 5-6 years (66 %).

Half of the respondents engage in identifying and supporting giftedness the children's parents.

Pictorial giftedness was found to be the type identified in children by the respondents the most (75 %), followed by sporting giftedness (66 %), creative and musical giftedness (50 % each), and performing and intellectual giftedness (42 %). Identified the least often are signs of academic, literary, and technical giftedness (16 %).

Twenty-five percent of the respondents confessed to having experienced issues with the education and development of gifted children (a lack of interest in frontal and group classes; difficulties in communication).

Just one of the 12 participating preschool institutions was found to employ a proprietary program for the development of giftedness.

All of the participating preschool institutions were found to be interested in working with a university and a backbone college in the area of development of giftedness in children.

The survey helped identify the following issues in identification and development of giftedness:

– pedagogues in preschool organizations denying the possibility of identifying signs of giftedness in preschool childhood; hence, a lack of work in the area of supporting such children;

– work with gifted children being conducted in certain cases not for the sake of the children themselves but for the sake of upholding the kindergarten's prestige (e.g., through gifted children's victories in contests);

– two-thirds of the kindergartens using no experimentally tested psychodiagnostic methodologies for identifying child giftedness, a result of which certain children in whom these signs are not manifested distinctly end up not getting the special pedagogical support they need;

– diagnostic assessments being conducted by an educator – not a psychologist who has a command of special psychodiagnostic methodologies;

– in certain cases, there is no cooperation between the kindergarten and the parents in the area of identifying and supporting giftedness;

– too much focus on identifying and developing pictorial giftedness to the detriment of other types thereof (academic, intellectual, practical, and social (spiritual-moral and emotional));

– most educators not seeing gifted children's problems in the area of communication and socialization and not helping them resolve those problems;

– the kindergartens not being engaged in any innovative activity in the area of identifying and supporting gifted children, with no efforts made to develop or implement proprietary programs.

4.2. Results from the diagnostic assessment of giftedness in preschoolers (carried out using A.I. Savenkov's methodology)

Computing the average score of assessments on each type of giftedness made it possible to rank-order pedagogue and parent assessments of the various types of giftedness in the children (Table 1) and compare the average assessments of the pedagogues and parents (Table 2).

Table 1. Average Scores of Pedagogue and Parent Assessments of Manifestations of Giftedness in the Children (based on the types of giftedness proposed by A.I. Klimov)

Type of giftedness	Average score of assessments by	
	pedagogues	parents
Pictorial	7.75	8.3
Sporting	6.94	7.84
Intellectual	6.15	6.4
Leadership	6.1	6.56
Creative	5.9	5.86
Performing	5.85	5.88
Literary	5.3	5.86
Musical	5.19	5.61
Academic	5.06	5.15
Technical	4.59	4.81

As evidenced in Table 1, the most prominent type of giftedness is pictorial giftedness, which reflects a high degree of interest in senior preschoolers in drawing and may be attributed to the significant amount of attention devoted in the kindergartens to drawing, model construction, and molding. Placed second is sporting giftedness, which deals with preschoolers' high motor activity and flexibility. Placed third is intellectual giftedness.

Technical giftedness is manifested at preschool age the least, which is associated both with the characteristics of one's age-related development and with the insufficient amount of time devoted in the kindergartens to the development of children's technical creativity.

The findings indicate that the development of giftedness in senior preschoolers in kindergartens ought to involve engaging them in pictorial and creative activity. At the same time, both at and outside school it will pay to offer the children assignments and didactic games that help

develop critical and creative thinking (TIPS pedagogy), gradually making more complex the level of creativity and novelty.

Table 2. Significance of Differences between Pedagogue and Parent Assessments of Manifestations of the Various Types of Giftedness in Children

Types of giftedness	Paired differences		Standard error of the mean	95 % confidence interval for the difference between the means				
	Mean	Standard deviation		Lower limit	Upper limit	t	df	Significance (two-tailed)
Intellectual	-0.25	2.065	0.231	-0.71	0.21	-1.083	79	0.282
Creative	0.375	4.596	0.514	-0.648	1.398	0.73	79	0.468
Academic	-0.088	2.382	0.266	-0.618	0.443	-0.329	79	0.743
Pictorial	-0.55	1.59	0.178	-0.904	-0.196	-3.093	79	**0.003**
Musical	-0.425	1.412	0.158	-0.739	-0.111	-2.692	79	**0.009**
Literary	-0.563	1.683	0.188	-0.937	-0.188	-2.99	79	**0.004**
Performing	-0.025	1.981	0.221	-0.466	0.416	-0.113	79	0.91
Technical	-0.225	2.267	0.253	-0.729	0.279	-0.888	79	0.377
Leadership	-0.463	1.786	0.2	-0.86	-0.065	-2.317	79	**0.023**
Sporting	-0.9	2.202	0.246	-1.39	-0.41	-3.655	79	**0**

As evidenced in Table 1, on all types of giftedness the average score of parent assessments is higher than that of pedagogue assessments. This is associated with the fact that parent assessments tend to be more subjective, as parents, naturally, tend to consider their child to be the best and most talented of all children. The authors compared the significance of differences using the pairwise comparison t-test. The statistical assessment indicated parent assessments to be significantly higher than pedagogue assessments on pictorial, musical, literary, leadership, and sporting giftedness. Across the remaining types of giftedness (intellectual, creative, academic, performing, and technical), the differences were not significant. Pedagogues in preschool educational institutions ought to work with parents who clearly inflate their assessments of their child's abilities and tend to see giftedness where it is not, sharing with them the results from the implementation of psychodiagnostic methodologies, which should facilitate the development of an adequate self-concept in the children.

Based on the points scored by the children on each type of giftedness based on pedagogue assessments, the authors distributed the children by degree of manifestations of giftedness (Table 3).

Table 3. Distribution of the Children by Degree of Manifestation of Giftedness (based on pedagogue assessments)

Type of giftedness	**Degree of manifestation of giftedness in the participating preschoolers (based on pedagogue assessments), % of the children**					
	Very high	**High**	**Medium**	**Lower than medium**	**Low**	**Absence of manifestations of giftedness**
Sporting	5	12.5	26.3	13.8	42.5	0
Intellectual	3.8	11	25	8.8	48.8	2.5
Pictorial	2.5	10	40	20	27.5	0

Leadership	2.5	10	31.3	10	43.8	2.5
Performing	2.5	10	25	18.5	42.5	1.3
Creative	2.5	10	22.5	13.8	51.3	0
Academic	0	11.8	21.3	6.3	58.8	0
Literary	2.5	7.5	26.3	10	53.8	0
Technical	1.3	7.5	21.3	7.5	62.5	0
Musical	2.5	2.5	27.5	12.5	55	0

In Table 3, the types of giftedness are ranked based on the share of children with very high and high degrees of manifestation of giftedness in descending order. As evidenced in Table 3, in number of children with high and very levels of giftedness the way is led by the same three types of giftedness as in average score of pedagogues and parent assessments (Table 1): pictorial, sporting, and intellectual. However, their rankings appear to have changed. Placed first in very high and high levels is sporting giftedness, which ranks second in average score. Placed second in very high and high levels is intellectual giftedness, which ranks third in average score. Placed third in very high and high levels is pictorial giftedness, which ranks first in average score.

Comparing these results with the results from the survey where the prevalent types of giftedness were assessed by the pedagogues based on their personal experience as opposed to diagnostic methodologies (placed first was pictorial giftedness (75 %), second – sporting giftedness (66 %), and third – creative and musical giftedness (50 % each)), it can be seen that the pedagogues underestimated intellectual giftedness in the children and overestimated creative and musical giftedness in them. This is testimony that pedagogues' empirical assessments of giftedness in preschoolers ought to be combined with the use of psychodiagnostic methodologies, which should help obtain results that are more objective and detect in children hidden giftedness, which is not manifested in most specific types and outcomes of children's activity.

The next question that was of interest to the authors was the following one: 'Preschoolers are more characterized by a high degree of manifestation of just one type of giftedness or concurrently several types thereof?' To answer this question, the authors identified preschoolers with a very high level of giftedness on at least one type of giftedness. There were 12 such children among the 80 participants. Among those 12 children, 10 had high and very high levels on three or more types of giftedness. The largest number of types of giftedness at a very high level was registered in Eduard K. (seven types: pictorial, musical, literary, performing, leadership, sporting, and technical). The rest of the children combined the following types of giftedness at a very high level:

– Zlata P.: creative and literary;

– Feliks A.: leadership and sporting.

Among the 12 children with high and very high levels, one had high and very high levels in two types of giftedness (leadership and sporting) and one – one in type (musical).

A comparison of the distributions using the 2-sample Z-test for two population proportions showed that the number of children with several types of giftedness at high and very high levels is significantly higher than the number of children with 1-2 types of giftedness ($z = 3.266$, $p = 0.00108$ at the 0.05 probability level). This helps conclude that preschoolers tend to have concurrently several types of giftedness (three and more) at a high level. This means that pedagogues ought to engage such children in various types of activity in order to develop in them various types of giftedness.

4.3. Results from the diagnostic assessment of interest in professions in preschoolers

The authors computed the average scores of the participating children's assessments of the groups of professions and ranked them in descending order (Table 4). They also computed the number of children with a dominant choice of a certain group of professions (7-8 points), which helped identify the group of professions that is most popular with the preschoolers and the number of children with a firm interest in a certain group of professions.

Table 4. The Average Scores of the Children's Average Assessments of the Groups of Professions and the Number of Children with a Dominant Interest in a Certain Group of Professions

Group of professions	Average score of assessments	Number of children with a dominant interest in a group of professions
Man – Imagery	4.58	18
Man – Nature	4.46	3
Man – Sign System	3.8	5
Man – Man	3.7	2
Man – Technology	3.45	6

As evidenced in Table 4, preschoolers have the greatest interest in professions within the 'Man – Imagery' group, which matches the dominant type of giftedness (pictorial). Placed second by dominant choice are professions within the 'Man – Technology' group, but the average assessments on this group are the lowest. Placed third are professions within the 'Man – Sign System' group. Placed fourth are professions within the 'Man – Nature' group, with 'Man – Man' bringing up the rear.

Of interest is the fact that professions in the groups 'Man – Man' (commerce and the services sector) and 'Man – Nature' (agriculture), which are the most topical for the region (Krasnodar Krai), are not popular with the children. This is testimony to the need to boost early vocational guidance on these professions through conversations, tours, and job trials.

4.4. The types of giftedness and interest in professions in preschoolers

The authors traced the correlation between pedagogue and parent assessments of the types of giftedness in the children and child assessments of the groups of professions using the Pearson correlation coefficient. The results are provided in Tables 5 and 6.

Table 5. Correlation between Pedagogue Assessments of Manifestations of the Various Types of Giftedness in Children and Preschooler Interest in the Groups of Professions

Type of giftedness		Man – Nature	Man – Technology	Man – Man	Man – Sign System	Man – Imagery
Intellectual	Correlation	**-0.272***	0.189	0.18	0.08	-0.168
	Value	0.015	0.093	0.111	0.478	0.137
Creative	Correlation	**-0.290****	0.159	0.104	0.028	-0.037
	Value	0.009	0.158	0.359	0.808	0.747
Academic	Correlation	**-0.314****	**0.288****	0.119	0.089	-0.192
	Value	0.005	0.01	0.293	0.43	0.088
Pictorial	Correlation	-0.082	0.01	0.086	-0.126	0.088
	Value	0.468	0.931	0.447	0.267	0.44
Musical	Correlation	-0.107	0.12	0.092	-0.011	-0.087
	Value	0.346	0.288	0.415	0.923	0.443
Literary	Correlation	-0.206	0.151	0.103	0.004	-0.065
	Value	0.066	0.182	0.365	0.974	0.565
Performing	Correlation	-0.213	0.18	0.038	-0.048	-0.003
	Value	0.058	0.109	0.737	0.675	0.982
Technical	Correlation	**-0.274***	0.219	0.19	0.096	-0.212
	Value	**0.014**	0.051	0.092	0.397	0.059
Leadership	Correlation	**-0.257***	0.133	**0.228***	0.025	-0.117
	Value	**0.021**	0.239	**0.042**	0.827	0.299

Sporting	Correlation	-0.156	0.179	0.183	-0.048	-0.137
	Value	0.168	0.113	0.104	0.671	0.226

Notes: ** Correlation is significant at the 0.01 level (two-tailed). * Correlation is significant at the 0.05 level (two-tailed).

As evidenced in Table 5, based on pedagogue assessments, a positive correlation was identified at the 0.01 level between academic giftedness and interest in the 'Man – Technology' group of professions, and a positive correlation was identified at the 0.05 level between leadership giftedness and interest in the 'Man – Man' group of professions.

Table 6. Correlation between Parent Assessments of Manifestations of the Various Types of Giftedness in Children and Preschooler Interest in the Groups of Professions

Type of giftedness		Man – Nature	Man – Technology	Man – Man	Man – Sign System	Man – Imagery
Intellectual	Correlation	-0.209	0.159	0.194	0.094	-0.204
	Value	0.062	0.158	0.084	0.409	0.069
Creative	Correlation	**-0.229***	**0.239***	0.188	0.111	**-0.270***
	Value	0.041	0.033	0.094	0.328	0.016
Academic	Correlation	**-0.307****	**0.268***	0.149	0.049	-0.167
	Value	0.006	0.016	0.187	0.667	0.139
Pictorial	Correlation	-0.129	0.039	0.119	-0.051	0.012
	Value	0.254	0.734	0.293	0.655	0.913
Musical	Correlation	-0.121	0.121	0.051	-0.033	-0.033
	Value	0.283	0.283	0.653	0.77	0.773
Literary	Correlation	-.282*	0.215	0.116	0.012	-0.087
	Value	0.011	0.055	0.305	0.913	0.442
Performing	Correlation	-0.207	0.166	0.111	-0.076	-0.022
	Value	0.066	0.14	0.326	0.503	0.849
Technical	Correlation	**-0.232***	0.16	0.169	0.102	-0.178
	Value	0.038	0.156	0.134	0.368	0.113
Leadership	Correlation	**-0.285***	0.142	**0.254***	0.078	-0.166
	Value	0.01	0.21	0.023	0.49	0.141
Sporting	Correlation	-0.111	0.157	0.177	-0.042	-0.149
	Value	0.326	0.164	0.117	0.712	0.188

Notes: ** Correlation is significant at the 0.01 level (two-tailed). * Correlation is significant at the 0.05 level (two-tailed)

As evidenced in Table 6, based on parent assessments, a positive correlation was identified at the 0.01 level between academic giftedness and interest in the 'Man – Technology' group of professions, between creative giftedness and interest in the 'Man – Technology' group of professions, and between leadership giftedness and interest in the 'Man – Man' group of professions.

Thus, it may be concluded that children with manifestations of academic and creative giftedness tend to be mostly interested in the 'Man – Technology' group of professions, and children with leadership giftedness – in the 'Man – Man' group of professions. Such results enable pedagogues in preschool educational institutions construct individual paths for early vocational guidance to gifted children.

4.5. Interest in professions in highly gifted children

The authors were also keen to establish whether highly gifted children tend to have a firm interest in one group of professions. To this end, they investigated interest in professions in the 12 identified highly gifted children. It was found that 11 of them had a distinct (6-8 points) interest only in one group of professions. A comparison of the distributions using the 2-sample Z-test for two population proportions showed that the number of highly gifted children with a distinct interest in one group of professions is a lot larger than the number of children with no such interest ($z = -4.0825$, $p = 0.00001$ at the 0.05 probability level).

The results align with the findings from a number of other studies. Specifically, A. Bildiren has found that gifted and talented children tend to begin planning their careers at a younger age (Bildiren, 2018).

These conclusions suggest that pedagogical support for highly gifted children ought to be aimed at boosting their interest in the selected group of professions (the selected profession).

Table 7 displays the types of giftedness in the participating highly gifted children and their interest in the professions.

Table 7. The Types of Giftedness in the Participating Highly Gifted Children and Their Interest in the Professions

	Child's name	Type of giftedness with a high degree of manifestation	Pedagogue's assessment	Group of professions which the child has displayed a high degree of interest in	Child's assessment
1	Yaroslav Zh.	Intellectual	16	Man – Sign System	6
2	Arina D.	Intellectual	15	Man – Sign System	8
3	Yana V.	Intellectual	15	Man – Sign System	6
4	Sofia N.	Creative	16	Man – Imagery	8
5	Zlata P.	Creative	15	Man – Technology	8
		Literary	15		
6	Eduard K.	Pictorial	16	Man – Imagery	7
		Performing	16		
		Musical	15		
		Literary	15		
		Leadership	16		
		Sporting	16		
		Technical	16	Man – Technology	7
7	Yulia M.	Pictorial	15	Man – Man	7
8	Elizaveta K.	Musical	16	Man – Imagery	7
9	Alisa P.	Performing	15	Man – Imagery	7
10	Felix A.	Leadership	15	Man – Sign System	7
		Sporting	16		
11	Erik A.	Sporting	16	Man – Man	6
12	Darya Z.	Sporting	15	Man – Imagery	7

5. Conclusion

The study helped draw the following conclusions:

– giftedness in children ought to be identified and supported starting from senior preschool age;

– purposeful work on identifying and supporting gifted preschoolers is mainly conducted in institutions of supplementary learning for children (linguistic and creative child development centers); however, to reach as many children as possible, this kind of work ought to be conducted in kindergartens as well;

– it will be possible to assess manifestations of giftedness most objectively if empirical observations of classroom teachers are combined with the use of psychodiagnostic methodologies;

– due to the asynchronicity of the development of the various spheres of personality at preschool age, it is important to not only identify manifestations of general giftedness in a child but establish which sphere of personality and which abilities are characterized by increased and advanced development in a specific child. In this context, the best methodology to use is R.G. DeHaan and J. Kough' Talent Map in a version adapted for preschoolers and junior schoolchildren by A.I. Savenkov;

– the types of giftedness that are most prevalent in preschoolers are pictorial, sporting, and intellectual giftedness. The least prevalent in them is technical giftedness. Therefore, the development of giftedness in senior preschoolers in kindergartens ought to involve engaging them in pictorial and sporting activity. At the same time, both at and outside school it will pay to offer the children assignments and didactic games that help develop critical and creative thinking and an interest in technology (TIPS pedagogy and STEM education), gradually making more complex the level of creativity and novelty;

– parent assessments of how much the children are endowed with pictorial, musical, literary, leadership, and sporting giftedness are much higher than pedagogue assessments. Pedagogues in preschool educational institutions ought to work with parents whose assessments of their child's abilities are clearly inflated and who tend to see giftedness where it is not, sharing with them the results from the implementation of psychodiagnostic methodologies, which should facilitate the development of an adequate self-concept in the children;

– preschoolers tend to have manifestations of concurrently several types of giftedness (three and more) at a high level. Pedagogues ought to engage such children in various types of activity in order to development in them various types of giftedness;

– the participating preschoolers have a dominant interest in professions within the 'Man – Imagery' group, which matches the dominant type of giftedness (pictorial). Interest in professions that are significant to the regional market is not prominent in the preschoolers. Pedagogues in the region's preschool educational institutions ought to provide early vocational guidance to the children on these professions;

– children with manifestations of academic and creative giftedness tend to have a dominant interest in the 'Man – Technology' group of professions, and children with leadership giftedness – in the 'Man – Man' group of professions. These linkages ought to be taken into account in building individual paths for early vocational guidance to gifted children;

– the number of highly gifted children with a distinct interest in one group of professions is significantly larger than the number of children with no such interest. Pedagogical support for highly gifted children ought to be oriented toward the development of their interest in the selected group of professions (the selected profession).

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References

Belova, 2016 – *Belova, E.S.* (2016). Vyyavlenie odarennykh detei na etape doshkol'nogo vozrasta [Identification of gifted children at the preschool age stage]. *Problemy sovremennoi nauki i obrazovaniya*. 25(67): 75-78.

Bildiren. 2018 – *Bildiren, A.* (2018). The Interest Issues of Gifted Children. *World Journal of Education*. 8(1): 17-26.

Bogoyavlenskaya, Bogoyavlenskaya, 2013 – *Bogoyavlenskaya, D.B., Bogoyavlenskaya, M.E.* (2013). Odarennost': priroda i diagnostika [Giftedness: Nature and diagnostic assessment]. M.: ANO «TsNPRO». P. 48. [in Russian]

Browder, 2010 – *Browder, C.S.* (2010). Metacognitive strategy research: results from a study with young (pre-school) children. K.A. Heller, A. Ziegler (Eds.). Munich studies of giftedness. Berlin: Lit Verlag. Pp. 67-84.

Cukierkorn et al., 2008 – *Cukierkorn, J.R., Karnes, F.A., Manning, S.J., Houston, H., Besnoy, K.* (2008). Recognizing Giftedness: Defining High Ability in Young Children. *Dimensions of early childhood*. 36 (2): 3-13.

Dullaghan, 2012 – *Dullaghan, B.* (2012). Why Doesn't Every Gifted Child Succeed? *Parenting for High Potential*. 1(3). [Electronic resource]. URL: http://www.nagc.org

Federal'nyi..., 2013 – Federal'nyi gosudarstvennyi obrazovatel'nyi standart doshkol'nogo obrazovaniya. Utverzhden prikazom Minobrnauki Rossii ot 17.10.2013 № 1155 (red. ot 21.01.2019) [Federal State Educational Standard for Preschool Education. Signed into law via the Decree of the Ministry of Education and Science of the Russian Federation No. 1155 of October 17, 2013 (as amended on January 21, 2019)]. [Electronic resource]. URL: https://pravobraz.ru/federalnyj-gosudarstvennyj-obrazovatelnyj-standart-doshkolnogo-obrazovaniya/ [in Russian]

Gilford, 1995 – *Gilford, Dzh.* (1995). Strukturnaya model' intellekta [A structural model of intellect]. M. [in Russian]

Gordeeva, Kashcheeva, 2017 – *Gordeeva, N.A., Kashcheeva, L.V.* (2017). Rannee professional'noe samoopredelenie doshkol'nikov [Early vocational self-determination of preschoolers]. Professional'noe samoopredelenie detei i molodezhi: sb. mater. mezhmunitsipal'noi nauchno-prakticheskoi konferentsii. Bratsk. Pp. 43-47. [in Russian]

Harrison, 2004 – *Harrison, C.* (2004). Giftedness in early childhood: The search for complexity and connection. *Roeper Review*. 26(2): 78-84.

Il'in, 2009 – *Il'in, E.P.* (2009). Psikhologiya tvorchestva, kreativnosti, odarennosti [The psychology of creativity and giftedness]. SPb.: Piter. 448 p. [in Russian]

Jackson, 2003 – *Jackson, N.* (2003). Young gifted children. N. Colangelo, G.A. Davis (Eds.). Handbook of gifted education. Boston: Allyn and Bacon. Pp. 470-482.

Klimov, 2014 – *Klimov, E.A.* (2014). Psikhologiya professional'nogo samoopredeleniya [The psychology of vocational self-determination]. M.: Izdatel'skii tsentr «Akademiya». 304 p. [in Russian]

Kozyrev, 2013 – *Kozyrev, F.N.* (2013). Otsenka sposobnosti k nravstvennomu suzhdeniyu s pomoshch'yu diagnosticheskogo kompleksa ONIKS: aprobatsiya i pervye rezul'taty [Assessing a person's capacity for moral judgment using the Oniks diagnostic suite: Tests and the first results]. [Electronic resource]. URL: https://vo.hse.ru/data/2013/11/01/1283182792/VO3_12-8%20Kozyrev.pdf [in Russian]

Laurie, Sharp, 2015 – *Laurie, A., Sharp, P.C.* (2015). The Neglected Readers: Differentiating Instruction for Academically Gifted and Talented Learners. *The Journal of Balanced Literacy Research and Instruction*. 3(1). Article 5. Pp.17-21.

Nakano et al., 2016 – *Nakano, T. de Cassia, Primi, R., Ribeiro, W. de Jesus, Almeida, L.S.* (2016). Multidimensional Assessment of Giftedness: Criterion Validity of Battery of Intelligence and Creativity Measures in Predicting Arts and Academic Talents. *Anales de psicología*. 32(3): 628-637.

Olszewski-Kubilius, 2003 – *Olszewski-Kubilius, P., Limburg-Weber, L., Pfeiffer, S.* (2003). Early gifts: Recognizing and nurturing children's talent. Waco: Prufrock Press. P. 63.

Panov, 2001 – *Panov, V.I.* (2001). Odarennye deti: vyyavlenie-obuchenie-razvitie [Gifted children: Identification, education, development]. *Pedagogika*. 4. [in Russian]

Pasport..., 2019 – Pasport Federal'nogo proekta «Uspekh kazhdogo rebenka». Prilozhenie k protokolu zasedaniya proektnogo komiteta po natsional'nomu proektu «Obrazovanie» ot 07 dekabrya 2018 g. № 3 [Passport of the Federal Project 'The Success of Each Child'. Annex to the minutes of the meeting of the Project Committee on the national project 'Education' No. 3 of December 7, 2018]. [Electronic resource]. URL: https://rmc23.ru/wp-content/uploads/2020/01/ [in Russian]

Pedagogicheskaya entsiklopediya, 1991 – Pedagogicheskaya entsiklopediya [Pedagogical encyclopedia]. M., 1991. [in Russian]

Perleth et al., 2000 – *Perleth, Ch., Schatz, T., Mönks, F.J.* (2000). Early identification of high ability. K.A. Heller, F.J. Mönks, R.J. Sternberg, R.F. Subotnik (Eds.). International handbook of giftedness and talent. Oxford: Pergamon. Pp. 297-316.

Piechowski, 1992 – *Piechowski, M.M.* (1992). Emotional development and emotional giftedness // N. Colangelo, G.A. Davis (Eds.). Handbook of gifted education. Boston: Allyn and Bacon. Pp. 285-305.

Ratner, Gubaidullina, 2014 – *Ratner, F.L., Gubaidullina, R.N.* (2014). Problemy i bar'ery odarennykh detei [Problems and barriers of gifted children]. *Vestnik TGPU*. 5(146): 105-109. [in Russian]

Savenkov, 2000 – *Savenkov, A.I.* (2000). Diagnostika detskoi odarennosti kak pedagogicheskaya problema [Diagnostic assessment of children's giftedness as a pedagogical problem]. *Pedagogika*. 10: 87-94. [in Russian]

Savenkov, 2002 – *Savenkov, A.I.* (2002). Vash rebenok talantliv. Detskaya odarennost' i domashnee obuchenie [Your child is talented. Children's giftedness and home-based education]. M.: Akademiya Razvitiya, 2002. [in Russian]

Savenkov, 2016 – *Savenkov, A.I.* (2016). Psikhologiya detskoi odarennosti [The psychology of children's giftedness]. M.: Yurait. [in Russian]

Shadrikov, 1986 – *Shadrikov, V.D.* (1986). O soderzhanii ponyatii «sposobnosti» i «odarennost'» [Revisiting the meaning of the terms 'capabilities' and 'giftedness']. M. [in Russian]

Sharp, Clemmer, 2015 – *Sharp, L.A., Clemmer, P.* (2015). The Neglected Readers: Differentiating Instruction for Academically Gifted and Talented Learners. *The Journal of Balanced Literacy Research and Instruction*. 3(1). Article 5. Pp.17-21.

Shcheblanova, 2016 – *Shcheblanova, E.I.* (2016). Odarennost' doshkol'nika: proyavleniya i problemy v razvitii [The giftedness of a preschooler: Manifestations and issues in development]. *Problemy sovremennoi nauki i obrazovaniya*. 24 (66): 59-63. [in Russian]

Silverman, 2012 – *Silverman, L.* (2012). Giftedness 101. N.Y.: Springer Publishing Company. 308 p.

Smedsrud, 2020 – *Smedsrud, J.* (2020). Explaining the Variations of Definitions in Gifted Education. *Nordic Studies in Education*. 40(1): 79-97.

Teplov, 2009 – *Teplov, B.M.* (2009). Psikhologiya i psikhofiziologiya individual'nykh razlichii [The psychology and psychophysiology of individual differences]. M.: NPO «MODEK». [in Russian]

Thurstone, Thurstone, 1941 – *Thurstone, L.L., Thurstone, T.G.* (1941). Factorial studies of intelligence. *Psychometric Monographs*. № 2.

Wright-Scott, 2018 – *Wright-Scott, Kerry-Ann* (2018). The social-emotional well-being of the gifted child and perceptions of parent and teacher social support. Queensland University of Technology. 333 p.

Yurkevich, 1996 – *Yurkevich, V.S.* (1996). Odarennyi rebenok: illyuzii i real'nost' [A gifted child: Illusions and reality]. M.: Prosveshchenie. 81 p. [in Russian]

Zakon..., 2006 – Zakon Krasnodarskogo kraya ot 2 iyunya 2006 goda № 1035-KZ «O podderzhke odarennykh detei v Krasnodarskom krae» [The Law of Krasnodar Krai No. 1035-KZ On Support for Gifted Children in Krasnodar Krai of June 2, 2006]. Pravovaya sistema «Garant». [Electronic resource]. URL: https://base.garant.ru/23941035/ [in Russian]