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**ПСИХОЛОГИЧЕСКАЯ НАУКА  
И ОБРАЗОВАНИЕ**

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**PSYCHOLOGICAL SCIENCE  
AND EDUCATION**

№ **1**

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# **ПСИХОЛОГИЧЕСКАЯ НАУКА И ОБРАЗОВАНИЕ**

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Dear readers!

We are happy to present the first issue of the journal "Psychological Science and Education" in 2023 (No. 1—2023). In addition to two traditional rubrics "Psychology of Development" and "Psychology of Education", the issue includes the third rubric "Discussions and Discourses".

The rubric "Psychology of Education" opens with a study on the competence of elementary school teachers in working on students' subject mistakes. The results obtained also testify to the low competence of primary school teachers in working on subject mistakes. It is argued that the problem lies in the established practice of teacher training, which needs to be modernized. The second study of the rubric presents a comparative analysis of the assessments of digital educational technologies by teachers who have experience in using them in their professional activities, and teachers who do not have such experience. The third article presents a study on the relationship between career orientations and self-centered personality characteristics of students. The last fourth article of the rubric presents the results of an empirical study aimed at analyzing the relationship between coping strategies and job satisfaction among teachers in distance teaching.

The rubric "Psychology of Development" is opened by a study on the identification of emotional and personal determinants of the professional identity of high school students. In the second study of the rubric, the problem of perception by children of preschool age of the popular toy Huggy-Waggy is considered. The results allow to say that for most modern preschoolers, the Huggy-Waggy toy is primarily a "status" item, but the toy is rarely used directly in play activities. The third article presents an empirical study aimed at testing the hypothesis about the relationship between visual modelling and the development of voluntariness in preschool children. The fourth article presents the results of a study aimed at identifying gender characteristics of the relationship between resilience and subjective well-being and the migration attitudes of schoolchildren. The last fifth article of the column presents an autoethnographic study of the second language learning, the article provides a detailed analysis of family interaction during the COVID-19 pandemic.

The rubric "Discussions and Discourses" presents a critical response to an article published in the journal "Psychological Science and Education" in issue No. 6-2021, which was devoted to understanding giftedness and developing creativity.

We hope that the readers of the journal will find interesting materials for themselves in the new issue of the journal "Psychological Science and Education".

*The Editorial Board*

# Psychological Analysis of the Competence of a Primary School Teacher in Working on Students' Subject Mistakes

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The results of an empirical study of the competence of teachers of primary general education in working on students' subject mistakes are presented. The study sample consisted of 2,603 teachers engaged in the implementation of primary general education programs from 7 subjects of the Russian Federation. The sample of the study is referential to the general population of primary school teachers according to the criteria of gender, age, teaching experience, level of education, qualifications, implemented educational program. To study the competence of primary school teachers in working on subject mistakes, the cases were developed on the material of the courses "Mathematics" and "Natural science". Each case included the description of the problem in solving which the student made a mistake. The teacher was asked to identify the mistake made, identify the original ideas of the students behind them and suggest a way to work with it. The results obtained indicate the low competence of primary school teachers in working on subject mistakes. The initial ideas of students do not act as a means of working on mistakes and the starting point of pedagogical work on the formation of scientific concepts. The article shows the importance of the teacher's ability to identify the initial subject representations and their significance in the formation of students' subject thinking.

**Keywords:** methodological competence of primary school teachers, mathematical and natural science mistakes, development, initial ideas, scientific concepts, educational tasks, reflection, joint activity.

**Funding.** The study was carried out within the framework of the state task of the Ministry of Education of the Russian Federation No. 073-00110-22-02 dated 08.04.2022 "Formation of the psychological component of the methodological training of the future teacher, necessary for analyzing the causes of students' mistakes in order to develop their subject conceptual thinking in the process of solving educational tasks".

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## Психологический анализ компетентности учителя начальной школы в работе над предметными ошибками обучающихся

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Представлены результаты эмпирического исследования компетентности педагогов начального общего образования в работе над предметными ошибками обучающихся. Выборку исследования составили 2603 педагога, осуществляющие деятельность по реализации программ начального общего образования, из 7 субъектов Российской Федерации. Выборка исследования референтна генеральной совокупности учителей начальных классов по критериям пола, возраста, педагогического стажа работы, уровня образования, квалификации, реализуемой образовательной программы. Учителям начальных классов были предложены разработанные на материале курсов «Математика» и «Окружающий мир» кейсы. Кейс включал в себя описание задачи, при решении которой младший школьник допустил ошибку. Педагогу предлагалось выявить допущенную ошибку, определить стоящие за ошибкой исходные представления обучающихся и предложить способ работы с ними. Полученные результаты свидетельствуют о низкой компетентности учителей начальных классов в работе над предметными ошибками. Исходные представления обучающихся не выступают средством работы над ошибками и отправным пунктом педагогической работы по формированию научных понятий. Утверждается, что причина низкой компетентности учителей начальных классов в работе над предметными ошибками кроется в сложившейся практике подготовки педагогов, которая нуждается в модернизации.



В статье показана важность способности педагога в выявлении исходных предметных представлений и их значимость в формировании предметно-го мышления обучающихся.

**Ключевые слова:** методическая компетентность учителя начальных классов, математические и естественно-научные ошибки, развитие, исходные представления, научные понятия, учебные задачи, рефлексия, совместная деятельность.

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## Introduction

Many Russian and international studies on education quality assessment have found that the teacher's qualifications, albeit a key factor, are not in themselves capable of improving educational outcomes for students, unless combined with another critical component part — the one that springs primarily from methodological competencies. As for the studies concerned with the professional competence of teachers, those have revealed considerable gaps in this competency cluster, existing even among experienced teachers conformant with the top two qualification categories and attested to possess a high level of subject competence [1; 11; 15; 20].

The teachers in our sample were asked to perform a standard diagnostic procedure designed to help the teacher identify errors in students' learning assignments across a range of subjects (Maths, Russian, and so on), followed by analysis of the causes of those errors and planning of further action by the teacher to eliminate the causes. We found that a

significant percent of both active teachers and future teachers in training run into difficulties when trying to expose and explain the causes of students' errors. This makes it impossible, for all intents and purposes, to use effective strategies to address the causes of error, which would make a difference especially for students with learning difficulties [2; 4; 8; 9; 10; 16; 19].

Studies with a psychological/pedagogical and didactic/methodological focus highlight the different typological mainsprings of students' subject errors. The division of errors into conceptual and procedural has gained general acclaim among researchers [6; 18; 21; 22; 23]. Inattention, negligence in the acts of learning and failure to control the correctness of one's own actions are typically cited as the causes of procedural subject errors. Procedural errors are accidental. They are errors of carelessness that learners can easily deal with on their own. Concept errors indicate a lack of understanding or a misunderstanding by students of the meaning and intent of the scientific concept under study. Students

are usually unable to deal with such errors on their own.

Psychological analysis shows that most concept errors are rooted in the learner's preexisting misconceptions about the material they study, which in most cases are far from being scientifically valid. The student's everyday notions are apt to act up in a learning situation. With the teacher being unaware of the nature of those notions and unable to bring them into the learning task at hand, erroneous action may follow. It is an essential part of professional excellence in developmental schooling to be able to understand the preconceptions behind an exposed error, to make the student aware of same and illuminate how limited and incomplete they are. The teacher who can do all this is required to possess more than an in-depth knowledge of their subject; the teacher should have an advanced command of the methods that can effectively upgrade the pupil's preconceptions to scientifically valid concepts [3; 7].

Meanwhile, extremely few psychological studies on primary school teacher competence in dealing with students' subject errors will examine students' preconceptions about the taught content that underlie the errors in question. Intended to fill the gap, this article presents the findings of a study, the object of which was to see and analyse how primary school teachers qualify their students' subject errors, how well they understand the preconceptions underlying the error, and how they propose to deal with them in learning situations.

### **Organisation and Methodology of the Study**

To investigate the competence of primary school teachers by assessing their capacity to work on subject errors, they were offered a Mathematics case on the subject of "Multiplication of Double-digit Numbers by Single-digit Numbers" and an Environment case where the assign-

ment was to "Compare objects of the same shape made from different types of material". The cases included a description of the task in which the primary school pupil had made a mistake.

The teacher had to answer three questions to resolve the case: 1. Where did the pupil make a mistake in their solution? 2. What preconceptions underlie the pupil's calculation error? 3. What are you going to do about the pupil's preconceptions on the subject? The questionnaire form also included questions about the nature of the proposed action to address the pupil's preconceptions and the methods practiced by the teacher in class to modify pupils' preconceptions. A separate cluster of questions were meant to elicit information about the respondent, namely age, region, education, qualifications, teaching track record, further training, and the primary school curriculum they taught.

A total of 2,603 general primary school teachers were surveyed, representing seven regions of the Russian Federation: Kabardino-Balkarian Republic, Republic of Buryatia, Krasnoyarsk Region and the regions of Volgograd, Vologda, Nizhny Novgorod and Sverdlovsk. The vast majority (98%) of the 2,603 survey participants were female. Only just over 1% were males. This is not inconsistent with the master sample, where the ratio of females to males was of 99% to 1%, respectively. Educators aged between 40 and 59 made up 65% of survey participants and 61.2% of the master sample. The majority (58%) of teachers participating in the survey have a track record of 20 years or longer in teaching. Two-thirds (69%) of the primary school teachers hold university degrees in Education, 3% hold university degrees in other subject areas, and about one in every four (27%) teachers holds a secondary vocational diploma in Education. Thirty percent of the survey participants are Top Category teachers. 91% of the primary school teachers have received professional retraining

or have otherwise updated and deepened their previously gained and developed teaching skills and expertise in the past three years, while 8% of respondents stated they had not received any further professional training. The majority of teachers surveyed use traditional curricula in their work. In most cases, they use the School of Russia teaching and learning suite (61%). The AnketologBOX survey and poll system was used in the study.

### Findings of the Study

#### **Case: "Multiplying a Double-digit Number by a Single-digit Number"**

First of all, in this case study the teacher was asked to point out the pupil's mistake when multiplying a double-digit number by a single-digit number. A specimen assignment is shown in Figure 1.

$\begin{array}{r} 1. \ x \ 42 \\ \quad 4 \\ \hline 168 \end{array}$	$\begin{array}{r} 2. \ x \ 73 \\ \quad 3 \\ \hline 219 \end{array}$	$\begin{array}{r} 3. \ x \ 38 \\ \quad 3 \\ \hline 154 \end{array}$
$\begin{array}{r} 4. \ x \ 57 \\ \quad 2 \\ \hline 124 \end{array}$	$\begin{array}{r} 5. \ x \ 22 \\ \quad 8 \\ \hline 246 \end{array}$	$\begin{array}{r} 6. \ x \ 47 \\ \quad 3 \\ \hline 181 \end{array}$

Fig. 1. Specimen multiplication assignment

The respondent was expected to point out a multiplication error or multiplication sequence irregularity, but without indicating the pupil's erroneous action (procedural answer), or to chalk the cause of the error up as the pupil's ignorance of the digit order concept (conceptually correct answer).

Examples of procedural answers received:

*"The pupil makes the same type of mistake when adding tens",*

*"Incorrect count of the tens",*

*"Multiplies tens in columns, does not know the multiplication tables or the addition table for numbers up to 20",*

*"The pupil does not know the sequence of steps in multiplication".*

Examples of conceptually correct answers received:

*"When multiplying the second multiplier by tens, they wrongfully added the singles they had carried",*

*"The pupil adds the tens he has memorised to the initial ten and then multiplies the tens",*

*"First the pupil adds up the tens, then multiplies them".*

*"The pupil adds up the tens before multiplying them, and then multiplies by that number".*

The results of the survey sample's mathematical case study are presented in the table below.

The findings of the survey indicate that, across the entire sample, nearly half of the teachers interviewed (49%) gave answers that fail to qualify for any of the above answer categories, making it impossible to articulate the actual mistake the pupil made in their calculations. Here are some answers that match the above description:

1. The respondent cites the pupil's ignorance of the multiplication/addition tables: "Doesn't know the multiplication tables, inattentive", "Doesn't know the multiplication and addition tables", "Doesn't know the composition of numbers", "The pupil does not know how to count", and others.

2. Correct or incorrect results specified: "Only two correct answers (the first and second results), all other examples have mistakes", "3, 4, 5, 6 are not solved right", "38×3=114, not 154, 57×2=114, not 124, 22×8=176, not 246, 47×3=141, not 181" etc.

3. Error type indicated: "Computational", "Arithmetical", etc.

We found that teachers with secondary vocational diplomas and track records of 5 years or under, holding no qualification category, found it difficult to pinpoint the error more frequently than was the average across the sample. It should be noted that the 40-49 age group gave the highest

Table

**Breakdown of teachers' answers to the question of what error the pupil made in multiplying a double-digit number by a single-digit number<sup>1</sup>**

	<b>Error not specified (or specified incorrectly)</b>	<b>Procedural answer</b>	<b>Conceptually correct answer</b>
Average for the sample	49%	34%	17%
<b>Respondents' age</b>			
Under 30	49%	33%	18%
30 to 39	30%	36%	34%
40 to 49	59%	34%	7%
50 to 59	35%	37%	29%
Over 59	42%	31%	26%
<b>Respondents' education</b>			
University degree in Education	47%	34%	19%
University degree in other subjects	46%	32%	22%
Secondary vocational training	54%	34%	12%
<b>Qualification category</b>			
Top category	43%	37%	20%
First category	49%	34%	17%
No category	56%	30%	13%
<b>Teaching track record</b>			
Up to 5 years	58%	29%	12%
5 to 9 years	59%	30%	12%
10 to 14 years	48%	33%	19%
15 to 19 years	47%	37%	15%
20 years or longer	45%	35%	19%

percent (59%) of answers in which the error was not indicated correctly or not at all, and the lowest percent of conceptually correct answers (7%). We further found that teachers using the 21st Century Primary School or Prospective Primary School program curricula were more likely than others to give procedural or conceptually correct answers (64% each).

As a second step in the case study, teachers were asked to define the pre-existing conceptions behind the pupil's error. The respondents were expected to give procedural or conceptually correct answers. The teacher's answer would be

categorised as *procedural* when it indicated:

— flawed command of the multiplication algorithm, but without pinpointing the specific place in the algorithm:

*"Ignorance of column multiplication methods",*

*"Written multiplication of two-digit numbers by one-digit numbers, table-based multiplication",*

*"Confuses the algorithms for multiplication and addition",*

— the specific place where the flawed perception of the multiplication algorithm was evident:

<sup>1</sup> The sum total of answers is not equal to 100% for every row. This is because the table does not account for respondents who gave no answer.

*“Swapped around the steps in the sequence for multiplying a two-digit number by a one-digit number”*,

*“When adding with an increment of ten, first they add up what they had carried, and then they add the number of tens to that sum”*,

*“The child is poorly aware of the multiplication algorithm. First they add the ten they had carried to the other tens, then they proceed to multiply”*.

The teacher’s answer would be categorised as conceptually correct when it pointed out a misconception of the composition of a number, or of the representation of a number as the sum of place-value summands:

*“Unfamiliar with the digit orders (e.g.  $9 \cdot 9 = 81$ , 1 being ones and 8 being tens. Then multiply the tens  $9 \cdot 3 = 27$  tens, and add 8 tens)”*,

*“Supposed to know the composition of numbers and be able to represent numbers as place-value summands”*.

In fact, the answers given by more than half of the survey respondents (54%) make it impossible to define the preexisting misconceptions underlying the pupil’s error. Here are some answers that match the above description:

1. Pointing out inferior knowledge of the multiplication or addition tables: “The pupil did these operations wrong due their infe-

rior knowledge of the multiplication tables”, “The child does not know his multiplication tables”, “The carried number is not added correctly”, etc.

2. Explaining why the error occurred, but citing reasons unrelated to the pupil’s preconceptions: “Inattentive”, “Doesn’t know the topic”, “The pupil’s errors reveal gaps in their knowledge”, etc.

Generally, respondents who had failed to indicate the error correctly or at all in step one of the case assignment, had a hard time divining the preconceptions behind the pupil’s error in step two (69%) (Fig. 2). The percent of respondents giving procedural or conceptually correct answers about the child’s preexisting misconceptions was 28% and 2%, respectively, in this group of respondents.

Among the teachers who had offered a conceptually correct answer pointing out the pupil’s error in multiplying a two-digit number by a one-digit number, much fewer respondents (35%) were found unable to define the preconceptions behind the pupil’s error. In this group, most respondents (57%) gave procedural answers. Conceptually correct answers were a lot less common (6%) (Fig. 2).

As we analysed the answers about the preconceptions behind the pupil’s error in the context of respondents’ sociodemo-

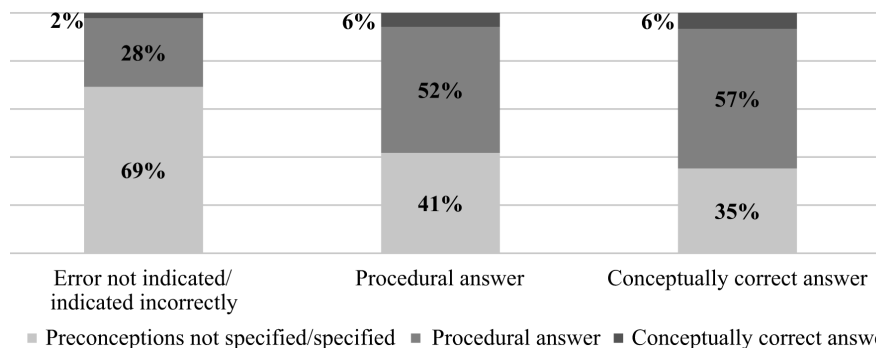


Fig. 2. Breakdown of teachers’ answers about the preexisting misconceptions behind the pupil’s error, depending on how they defined the pupil’s error in multiplying a double-digit number by a single-digit number

graphic differences, we found that the more educated and qualified the respondent was, the more likely they were to give the correct (procedural or conceptual) answer.

The majority of the teachers surveyed said they would address the pupil's preexisting misconceptions by means of *repetition of previously learned material* (69%).

This group was deemed to encompass answers that proposed any of the following:  
 — repetition of the actual material the pupil is supposed to have learned before:

*"We would work through the multiplication algorithm for two-digit numbers",*

*"I would have multiplication in columns explained to them again. I would call a strong student who knows the subject well and have them explain it in front of the class. Then I would have the student who made these errors work them through",*

*"I would tutor this child one-on-one", etc.*

— work with the faulty maths:

*"I'd give my class the faulty solution and have them find out what's wrong with it."*

*"Work the mistakes through",*

*"I would include the student's pre-conception in some challenging assignment in class", etc.*

One in every five teachers failed to articulate clearly what they proposed to do about the pupil's pre-conceptions. These answers included the following variants:

*"Learn the multiplication tables and the addition tables",*

*"Revisit the multiplication tables", etc.*

Those respondents who had failed to define the pre-conceptions behind the pupil's error had a harder time figuring out what they would do about the pupil's pre-conceptions than those who had given procedural or conceptually correct answers about the pre-conceptions. In the first group, 29% of the teachers said they would make an effort to trouble-shoot the misidentified error. In the second group, only 2%—3% (Fig. 3) said they would. Those teachers who were able to elicit the pre-conceptions behind the pupil's error by linking them to a misconception about the composition of numbers (i.e. gave a conceptually correct answer) were much more likely (51%) than the sample average to exhibit the willingness to address the pupil's preexisting misconception.

The statistically meaningful (but not causal) relationship between the indicators (teachers' definition of the pre-conceptions behind the pupil's calculation error and their strategy for dealing with those pre-conceptions) in this case study is vindicated by such criterion as the Pearson Chi-square ( $\chi^2$ ), equal to 348.9 at  $p < 0.001$  (calculated with the aid of SPSS Statistics 26.0 software).

The Spearman Correlation Coefficient value (reflecting the degree of connectiv-

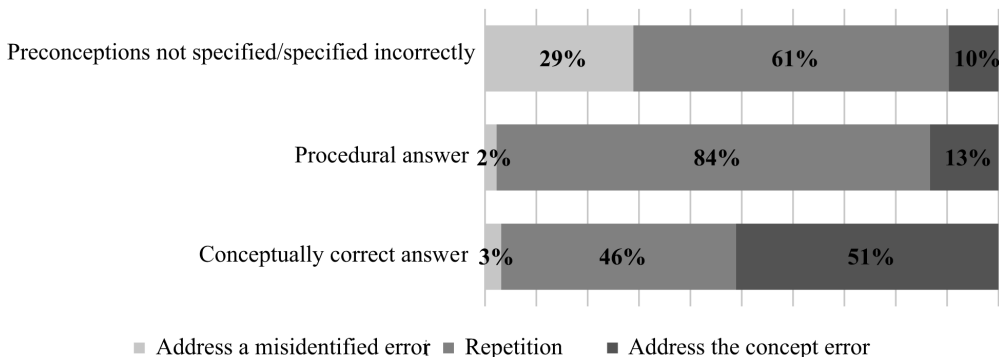


Fig. 3. Breakdown of teachers' answers about proposed action to address the pupil's pre-conceptions, depending on how they defined the pre-conceptions behind the pupil's calculation error

ity) is 0.37 at  $p < 0.001$  for the two variables. Therefore, there is a weak correlation between the variables. The relationship between the indicators is positive, indicating a unidirectional relationship between the variables.

There is also a statistically meaningful relationship between answers to the question about the errors in the pupil's solution, and how the teachers proposed to deal with the preconceptions. The correlation between the indicators is vindicated by Pearson's Chi-square ( $\chi^2$ ), equaling 217.4 at  $p < 0.001$ . The value of the Spearman Correlation Coefficient is 0.3 at  $p < 0.001$  for the two variables. This means that there is only a weak correlation between the variables.

The relationship between the variables is shown graphically in Fig. 4. As we can see, the teachers who misidentified the pupil's calculation error are more likely to make plans to address the wrong error than those who gave procedural or conceptually correct answers. This — essentially formal — response indicates that these teachers are not sufficiently competent to trouble-shoot subject errors.

The vast majority (67%—72%) of teachers plan to deal with the pupil's preconceptions by dint of repetition. Repetition, as a method of dealing with subject errors, is constituted by the learner's repeat refer-

ence to previously learned academic content. The student is instructed to correct their mistakes independently, but the root cause of the mistake is never illuminated or brainstormed in a classroom environment. This type of corrective action produces very poor results, and the probability of the same mistake recurring in a similar assignment remains high.

There is a strong and easily traceable connection between the choice of method in dealing with the pupil's preconceptions and the teacher's qualification category: the higher the qualification category, the more likely the teacher is to be willing to deal with the concept error, and the less likely they are to go after a wrong error. No meaningful correlation was noted between the teachers' answers and the curriculum they teach. The answers given by Planet Knowledge program teachers stand somewhat apart. They demonstrated a lower percent of answers implying willingness to trouble-shoot the concept error (8%), compared to above 10% (13% to 16%) for teachers affiliated with other teaching programs.

**Case: Comparing objects of the same shape, made from different types of material**

In this science case, teachers were asked to compare objects of the same

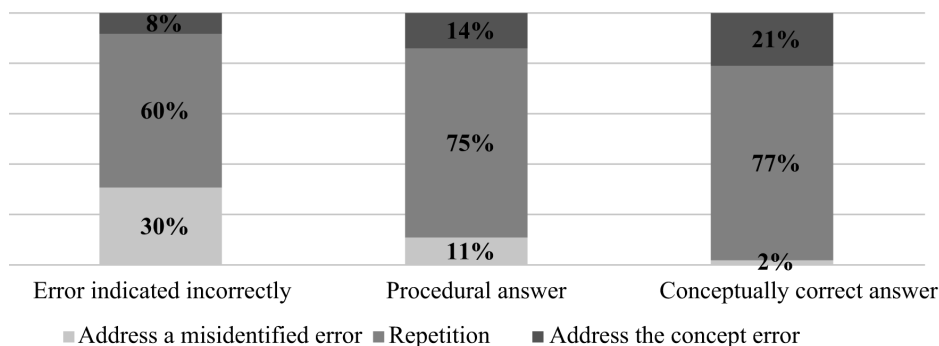


Fig. 4. Breakdown of teachers' answers about proposed action to address pupil's preconceptions, depending on how they defined the pupil's calculation error

shape made from different types of material (Fig. 5).

### The challenge:

Students were asked to take a good look at several spheres made from three different types of material: lead, wood, and polystyrene (synthetic foam), in three different sizes: small, medium, and large.

The students were then asked, for every pair of spheres, to define “which sphere, the left one or the right one, would sink faster if placed in a water tank?” Masha chose the right-hand sphere because it was bigger.

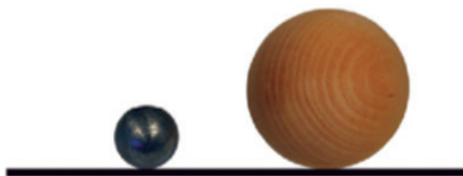


Fig. 5. Case study variant

The question “what is wrong with the pupil’s answer?” proved to be hard work for the survey participants: 48% of those surveyed failed to point out the real error, and another 14% said they were unable to answer. It is pertinent to note that when answering the questions in the 2 earlier cases, the percent of teachers choosing the “difficult to answer” option never exceeded 5%.

Respondents who offered answers that failed to indicate the error or indicated an incorrect one tunnel-visioned on a single metric of the object:

*“The pupil ignores the material the sphere is made of”,*

*“The size of the sphere does not matter so much”,*

*“The objects were compared by size”.*

Only 15 people, or under 1% of those surveyed, gave conceptually correct answers relying on a relationship between several properties of the object.

*“No correct relationship found between the object’s weight, material and size”,*

*“Masha overlooks the interplay between the material’s composition, water density and body resistance”, etc.*

Procedural answers that named two parameters without any correlation specifics accounted for 37% of all answers:

*“It’s a wooden sphere, wood doesn’t sink. Size is irrelevant”,*

*“In this case, it’s the weight of the object that counts, not the size”,*

*“When it’s big by volume, it doesn’t mean it’s heavy”,*

*“It’s big, so it’s heavy and will sink. It’s small, that means it’s light, it’ll float”, etc.*

No meaningful distinctions were recorded based, for example, on length of service or qualification category. This was not the case with the other questions, where the answers given by respondents with different education levels and/or qualification categories were meaningfully different.

The second question in this case study — “What are the preconceptions behind the pupil’s calculation error?” — likewise did not come easy to the survey participants: 17% answered with “difficult to answer”, and another 44%, although they answered the question, either failed to identify the error or identified the same incorrectly. These teachers generally cited a misconception about the influence of just one property of the object:

*“The larger object will sink”,*

*“Conception of size”,*

*“Conception of body weight”,*

*“Conception of the object’s shape”,*

*“Unfamiliar with the properties of materials”,*

*“Material ignored”, etc.*

Only 11 (0.4%) conceptually correct answers were given, naming ignorance of the interdependence of the object’s properties as the fundamental misconception:

*“Has no idea of how the size of the sphere relates to its weight, depending on the nature of the material it is made of”, etc.*

38% of respondents gave procedural answers, outlining perceptions of individual object properties with no regard for their interrelationship:



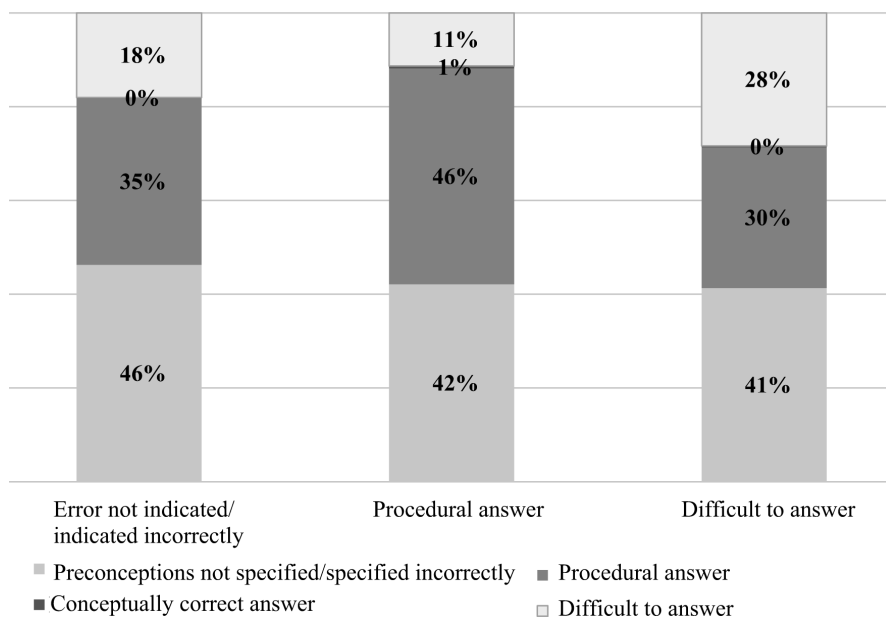
*“The size and weight of an object determine whether it sinks or floats in water”, “Notions of the objects’ weight and material”, “The misconception that the larger the object, the heavier it is”, etc.*

As in the two earlier cases, the teachers who had given procedural answers to the question asking to define the mistake in the student’s calculations were more likely than those who could not specify the mistake at all to give a procedural answer to the question about the preexisting notions behind the mistake in the student’s calculations (Fig. 6). It should be noted, however, that the differences in answers in this case study are not as clearly traceable as they were in the earlier cases. For instance, the percents of teachers failing to correctly identify the preexisting notions behind the pupil’s calculation error were almost the same with those respondents who gave procedural answers about the error in

the pupil’s calculations, and those who did not specify the error all, failed to specify the same correctly, or found it difficult to answer (42%, 46% and 41% respectively).

Given that a significant percent of respondents found it difficult to answer or gave wrong answers about the preexisting misconceptions underlying the pupil’s calculation error, it would make sense to focus the analysis on how the teachers’ procedural answers break down according to sociodemographics. While next to no meaningful differences are evident in the answers, it is worth noting that teachers with a length of service below 15 years gave procedural answers more frequently than their more experienced colleagues.

Although it proved quite difficult for the teachers to identify the preconceptions behind the pupil’s error in comparing objects of the same shape made from different types of material, somehow they had a fairly clear



*Fig. 6. Breakdown of teachers’ answers about the preceptions behind the pupil’s calculation error, depending on their answers about the pupil’s error in comparing objects of the same shape, made from different types of material*

idea of how they would address those pre-conceptions: by means of repetition (82%):

*“Hands-on: weigh the spheres, tell them about the properties of the material they are made from (demonstrate connection to the environment)”*,

*“I would show and explain in a way they can see and grasp”*,

*“Demonstration through visual experiments”*,

*“We would delve into the matter”*,

*“We would repeat more”*.

Only 3 teachers out of the entire sample said they would address the pupil’s concept error:

*“Teach them to ponder objects fully and comprehensively, covering all attributes in their interrelationship”*,

*“Study the properties of materials and make the correct notions stick”*, etc.

Teachers planning to address a misidentified error (8%) gave answers like the one below:

*“The right-hand sphere will sink in water as it is made from lead and has greater weight” etc.*

Respondents named repetition (Fig. 7) as the preferred method of addressing the preexisting notions regardless of whether they had succeeded or failed to identify the preexisting notions behind the pupil’s error. The percents of these answers are,

for all intents and purposes, the same among teachers having given procedural answers and those having misidentified or failed to identify the preexisting notions underlying the pupil’s error: 87% and 85% respectively.

No statistically meaningful interplay was found in this case study between the indicators (teachers’ definition of the preconceptions behind the pupil’s calculation error and their proposed strategy for addressing those preconceptions).

In our study, we found that almost half of the primary school teachers surveyed proved unable to correctly identify the pupil’s mistakes, as evidenced by their answers to the first question in both cases: 48% in the Maths case and 48% in the Science case. Approximately one-third of the teachers surveyed cited violations of procedures, rules or algorithms as reasons for the pupil’s errors: 34% in the Maths case and 36% in the Science case. Only 17% and 0.6%, respectively, of the primary school teachers pointed out the pupil’s concept error in the subject areas of Mathematics and Environment.

The answers to the second question, where the respondents were asked to define the preexisting notions behind the pupil’s calculation errors, turned out to be in correlation with the answers to the first questions in each case study. 54% and 44% misidentified the

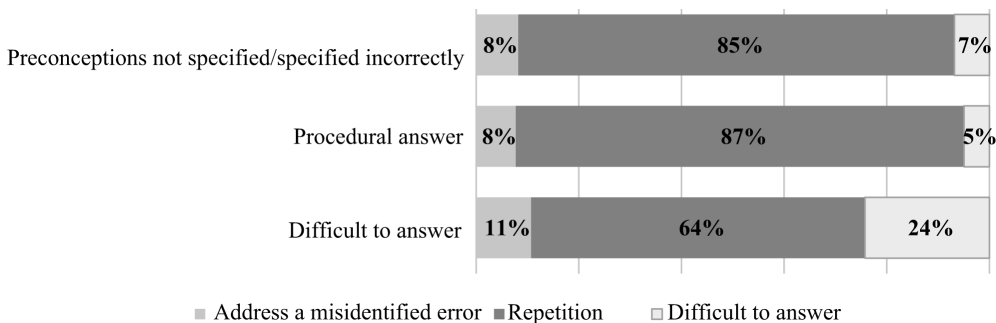


Fig. 7. Breakdown of teachers’ answers on how they proposed to address the pupil’s preconceptions, manifested when comparing objects of the same shape made from different types of material, depending on their answers about the preconceptions underlying the pupil’s calculation error

error; 41% and 38% gave a procedural answer, and only 4% and 0.4%, respectively, of those surveyed gave a conceptual answer.

The teachers demonstrated particularly poor performance in the first and second questions of the Science case. Such poor results may be explained by the fact that the case "Comparison of objects of the same shape made from different types of material" is not part of the general primary school curriculum. On the other hand, each of the teachers had learned this topic in their school physics course.

### **Addressing the pupils' preconceptions**

Broached by the case studies, the question of how the teachers proposed to deal with the pupil's preexisting misconceptions was continued with the question: "What would you do about the pupils' preexisting misconceptions at lessons in Mathematics and Environment?". Respondents were not asked to think of an answer themselves, but to choose one of the options offered.

As attested by the survey results, the vast majority of teachers (86%) suggest that these misconceptions should be engaged in the process of knowledge- and concept-building.

If we take a look at how the teachers answered the question of what they proposed to do about the pupils' preexisting misconceptions in class when teaching Mathematics and Environment in light of their sociodemographics, we will notice that the survey participants without a qualification category were more likely than their colleagues holding top or first category to propose the demolition of preexisting misconceptions through observation and storytelling. Teachers with teaching track records of up to 10 years propose to resort to the same method more frequently than their more experienced colleagues.

So what should be done about the pupils' preexisting misconceptions at Mathematics and Environment lessons? The

answer variants suggested by the teachers are shown in Fig. 8 below.

The most common answer given by teachers was to do hands-on work in class (23%) and to brainstorm problem cases, possibly with the aid of tutorial videos (e.g. Auntie Owl's Lessons).

Another frequently given answer proposed action to make new knowledge stick as a way to deal with preexisting misconceptions (17%). The proposed action includes tests, learning the rules by heart, doing optional assignments, and broadening one's mind by learning extracurricular material.

The percents were almost equal of teachers who would address the preexisting misconceptions by means of "observation" (13%), including visual demonstration, observation of natural phenomena, and experiments (11%).

In order to reshape the preexisting misconceptions, 7% of respondents stated they would be willing to brainstorm real-life situations, explaining things through real-life examples, showing videos, and solving similar problems in ways that tie in with the pupil's daily life.

All the other proposed methods of addressing preexisting misconceptions (such as experiments, joint activities and teacher-pupil dialogue) were suggested much less frequently, less than 2% of the time.

To illustrate their point about the proposed action to address pupils' preexisting (mis)conceptions in Mathematics and Environment class, teachers were asked to describe what they thought would be an example of best practice for managing the development of background notions in students. The teachers were expected to deliver their answers in a text of 200 or fewer words.

Describing a best practice, one in every five respondents used some material they had found online rather than think of their own answer. Although some of these pieces were high quality, we cannot overlook the multiple instances of plagiarism and copious repetitions. Contrary to what might have

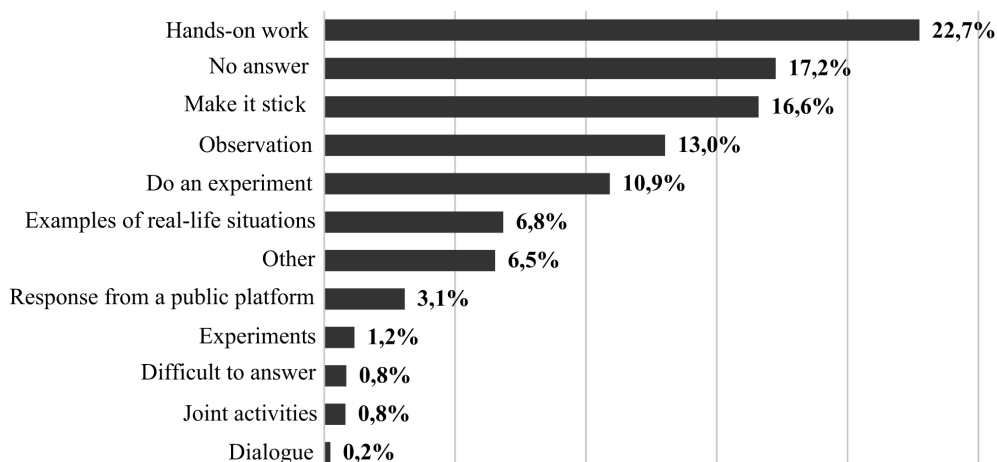


Fig. 8. Breakdown of teachers' answers on how they proposed to address pupils' preexisting (mis)conceptions in class when teaching Mathematics and Environment

been expected, the frequency with which this strategy was used did not vary with the teachers' education level, track record, qualification category or age. That said, the younger teachers (under 30) borrowed material online more actively than their colleagues from the most senior age group (over 59): 24% and 16% respectively.

A large percent of respondents (21%) did not answer the best practice question or indicated that they found it difficult to answer: 15% and 6% respectively. We noted that the percent of teachers who ignored the question or found it difficult to answer declined as their teaching track record increased.

Turning to the meaningful answers (59%) about best practices, let's take a look at the most frequently given ones.

Almost equal percents of respondents thought these types of activity qualified as best practice:

- hands-on work, including experiments, observation, and brainstorming of challenging cases (11%),
- lab work, giving pupils personalized assignments (10%).

8% of respondents each cited experiments and making new knowledge stick as

best practice. A marginally lower percent of teachers (7%) believe that observation would be the best method to foster the correct background notions in pupils in Mathematics and Environment class.

Fewer than 5% of teachers numbered the following among best practices:

- didactic games (4%),
- real-life case studies (2%),
- joint activities (1%),
- promotion of functional literacy (0.2%).

### Remarks about the study findings

Our findings suggest that the case study assignments we gave proved quite difficult for the teachers: a large percent of our respondents were unable to correctly define the preexisting misconceptions behind the error. The pool of "correct" answers was dominated by procedural answers, which registered the fact of the error, referred to inadequate command of the academic material in question, but failed to specify the cause of the error (unlike the conceptually correct answers).

We found that teachers with university degrees are more likely to propose action to address a concept error than their colleagues with secondary vocational diplo-

mas. The percent of teachers advocating action to address preexisting misconceptions increases among experienced teachers with track records of 10 years or over. If we take a look at how the sociodemographic factors reflect on the respondents' answers, we have sufficient evidence to state that the teacher's education level and qualification category are the leading factors.

The vast majority of teachers deem it advisable to bring pupils' preexisting notions into the knowledge- and concept-building process (86%). Meanwhile, they suggest the same methods of addressing the preexisting misconceptions as those teachers who argue in favour of breaking down children's preexisting misconceptions through observation and storytelling. Repetition, i.e. recommendation to the pupil that they revisit the previously learned content, is the universal method of addressing the misconception behind a pupil's calculation error.

The case study challenges where the teachers were supposed to point out pupils' errors in solving learning assignments on different academic material (Mathematics, Environment), followed by an analysis of the causes of those errors and planning of the teacher's further course of action to address those causes, gave us sufficient evidence to conclude that primary school teachers have trouble dealing with pupils' subject errors. The only explanation that seems apt here is that they are never trained for this kind of work by the educational institution they attend. The curricula and work programmes for the training of primary school teachers do not include any practices or knowhow they could use to address pupils' preexisting conceptions as part of teaching scientific concepts. Primary school textbooks and primary school teacher's guides are predicated on a logic whereby the learning of new scientific concepts ignores the pupil's preexisting knowledge and conceptions, as if the pupil were a *tabula rasa*.

By ignoring, in the learning process, the child's life experience and ideas formed so far in life, we end up in a place where any sci-

ence concept the child is supposed to learn has no internal reference points to stand on, is never filled with personalized meaning and never gets integrated into the child's existing system of ideas and concepts. When a new science concept is learned, as it were, by default, the pupil acquires no real notion of the meaning it carries, and there is nothing in real life the child could match that concept with. Within a learning process organised in this manner, according to L.S. Vygotsky, "the child's special characteristics play no constructive, progressive or formative role in the history of the child's mental development. Higher forms of thought never emerge therefrom. Instead, these higher forms simply take the place of the preexisting ones" [1, p. 196]. It logically follows from this teaching methodology that the pupil's preexisting conceptions combine in a non-contradictory fashion with the newly acquired scientific concepts, and will frequently supplant the latter in a practical situation.

### **Analysing the methodology training practices of future primary school teachers**

The findings of our psychological study of primary school teachers' competence in dealing with subject errors give us sufficient evidence to maintain that the contents and knowhow of methodology training for prospective primary school teachers is in need of a qualitative reengineering. An analysis of the current teacher training practices attests to the fact that prospective teachers receive no training in how to address subject errors and the underlying preexisting notions.

In 2018, the staff of the Prof. V.A. Guruzhapov Educational Psychology Chair at the Educational Psychology Department of the Moscow State University of Educational Psychology reviewed the current work syllabuses for Primary School Mathematics Teaching Methodology and Primary School Mathematics Teaching Knowhow in 57 teacher-training universities across Russia. That is 63% of all higher educa-

tion institutions that train primary school teachers in Russia. The syllabuses of two institutions only were found to include the “Correction of Mistakes” topic, however, the teacher’s role in the corrective action is never explained. It was established that the authors of the syllabuses in question fail to fully account for the contemporary primary school realities on the ground inasmuch as they fail to respond to the requirements of increasingly personalized tuition with an emphasis on the psychological component of pupils’ learning experience. Further analysis revealed that Education and Educational Psychology students are never instructed that their duties would include detection of errors or catering to the special characteristics of each individual pupil.

Also reviewed were the methodology guides for Form 1—4 Mathematics textbooks on the 2019 Federal List of Textbooks. It is these textbooks the future primary school teachers are trained to use in their work. A total of 11 sets of textbooks were on that list, complete with methodology guides attached, according to the publishers’ websites. Ten methodology guides turned out to be available.

We reviewed these methodology guides to see if they contained descriptions of the typical learner errors — only to find that none of the guides offered such descriptions. However, they do make provisions for the trouble-shooting of mistakes. All methodology guides can be divided into three groups by how this topic is covered.

The first group are those guides that prescribe correction of mistakes as a routine activity to take place at regular intervals during the learning process. Their idea of the teacher’s work on subject errors is all about preventing the incidence of same. A variety of techniques are offered to that end. The authors advise teachers to sometimes make their own mistakes in the “error-prone” places, and to set “traps” like unsolvable problems, wrong answers, etc. This is rationalized by the fact that even

computational skills cannot develop unless the concept is grasped: the pupil has to understand first and only then to memorise. The methodology manuals that follow the system of D.B. Elkonin & V.V. Davydov and the system of L.V. Zankov may be said to belong to the first group.

The second group includes manuals in which no typical errors are described, yet provisions are made for the correction of errors. Following a test, the teacher is advised to make the student aware of their mistakes and work with the student to review their work and parse the assignments where the mistakes were made. Students are then to be given similar assignments to do. The teacher’s main role is to select the appropriate assignment to practice at home or in class.

The third group of methodology guides consists of those in which no typical errors are described and no instructional effort is envisaged to address students’ subject errors.

## Conclusion

In developmental education, the primary school teacher’s methodological competence manifests itself first and foremost in the ability to redirect their pedagogical efforts, focusing them on the learning activities of the students. In subject-specific teaching, methodological competence is manifested in the teacher’s ability to balance the internalisation and externalisation processes in the acquisition of scientific concepts. The learning process is currently dominated by internalization: the teacher’s efforts are focused on explaining a new scientific concept to students, i.e. transforming the external into the internal. When the learning process is organised this way, it ignores the learner’s own internal experience — there is no counter-movement: the learner’s preexisting conceptions are not being upgraded to the level of a scientific concept. By the very essence of the concept of development, one can only develop what already exists; otherwise we are talking about formation.

The methodological competence of a primary school teacher in developmental education manifests itself in the ability to design and implement a process whereby the new academic content passes from the outside to the inside while the learners' preexisting conceptions simultaneously externalize. It is in this reciprocal movement of internalisation and externalisation that the intrinsically motivated learning of a new scientific concept may happen, and subject-focused conceptual thinking may germinate.

On the psychological plane, this translates into a maximisation of communication and reflection processes in the collaborative learning activities of primary school pupils [17]. In our opinion, L.S. Vygotsky's concept of the proximal development zone [3; 12; 13; 14] can serve as the starting point of a new methodology that would allow for scientific concepts to be built on the preexisting notions of pupils. In turn, this methodology for bringing pu-

pils' preconceptions into the learning of scientific concepts implies a remake of the learning/ teaching process organisation model in primary school, yielding a model fully aligned with the goals and objects of modern developmental education. The challenge of building such a model is in the near-term pipeline for educational psychology and didactic-methodological research.

In this context, the question of continuity between preschooling and general primary schooling could be resolved along the lines of coordinated curricula, dedicated to the incremental cultural development of children in ontogenesis [5]. The lack of learning motivation, a serious concern at this time, could be resolved as part of the effort in dealing with primary school pupils' preexisting notions: when the learner's personal experience is brought into the learning process, learning takes on a personal meaning for them.

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# Evaluation of Digital Educational Technologies by University Teachers

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A comparative analysis of the assessments of digital educational technologies by teachers (mean age —  $49 \pm 12$  years) of various Russian Federation universities who have experience in using them in their professional activities ( $N=110$ ) and teachers who do not have such experience ( $N=40$ ) is carried out. The samples are equivalent in gender, academic titles and degrees, age, and work experience. The main advantages are the following: access to information at any convenient time; flexible schedule and the ability to organize independent work. Among the difficulties technical failures, lack of personal contacts, inconvenience of working with an electronic course and the need to spend a long time at the computer were noted. Teachers with experience in the development of e-learning courses rate work in an electronic environment much more positively, in contrast to teachers without experience who exaggerate the frequency of technical failures, point out the lack of technical and legal support, and the difficulties in monitoring assignments. All the teachers can be divided into “skeptics” and “enthusiasts” in relation to the acceptance of digital environment. “Enthusiasts”, unlike “skeptics”, have a positive attitude to innovations, believe that the educational process becomes more flexible and intense, emphasize the growth of student involvement and independence, individualization of training, support from management, colleagues, technical support, transparency of interaction. Most teachers with experience in using e-learning courses turned out to be “enthusiasts”. The groups of “enthusiasts” and “skeptics” do not differ in gender, age, and professional experience, which indicates the possible presence of “second order” barriers: pedagogical beliefs that prevent the acceptance of e-learning.

**Keywords:** digital educational environment, e-learning course, university teachers.

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## Оценка цифровых образовательных технологий преподавателями вузов

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Представлен сравнительный анализ оценок цифровых образовательных технологий преподавателями (средний возраст — 49±12 лет) различных вузов страны, имеющими опыт их использования в своей профессиональной деятельности (N=110), и преподавателями, не имеющими такого опыта (N=40). Выборки эквивалентны по полу, наличию ученых званий и степеней, возрасту, стажу работы. Установлено, что основными преимуществами названы доступ к информации в любое удобное время; гибкий график и возможность организации самостоятельной работы. Среди трудностей отмечены технические сбои, недостаток личных контактов, неудобство работы с электронным курсом и необходимость проводить долгое время за компьютером. Отмечается, что преподаватели, имеющие опыт разработки электронных учебных курсов, позитивнее оценивают работу в электронной среде, в отличие от преподавателей без опыта, которые преувеличивают частоту технических сбоев, указывают на недостатки технической и юридической поддержки, трудности контроля выполнения заданий. Авторы условно классифицируют преподавателей по критерию «отношение к принятию цифровой среды» и разделяют их на «скептиков» и «энтузиастов». Отмечается, что «энтузиасты» отличаются тем, что позитивнее относятся к нововведениям, считают, что учебный процесс приобретает гибкость и интенсивность, подчеркивают рост вовлеченности и самостоятельности студентов, индивидуализацию обучения, поддержку со стороны руководства и коллег, прозрачность взаимодействия. Группы «энтузиастов» и «скептиков» не различаются по полу, возрасту и стажу, что свидетельствует о возможном наличии барьеров «второго порядка»: педагогических убеждений, препятствующих принятию электронного обучения.

**Ключевые слова:** цифровая образовательная среда, электронный учебный курс, преподаватели вузов.

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## Introduction

The introduction of new information and communication technology in education facilitates the digital transformation of educational institutions, which is understood as the modernization of IT infrastructure, the development of modern platforms, tools and services, the management of human resources and data in order to realize the opportunity to optimally apply innovative technologies and significantly change approaches to teaching and learning [6; 8; 21; 22]. A clear definition of digital educational technology has not yet been given. Nevertheless, in general terms, they are defined as learning tools that make an important contribution to solving global problems in virtual space [31]; “any set of human-computer interactions that move the subject and the community involved closer to their object” [23, p. 457]; new “cultural information tools” of the content of education, characterized by flexibility, reproducibility, variability, selectivity, individualization [19]. At the same time, it is emphasized that the harmony of the digital educational environment of the university is achieved with the activity of each teacher, “his/her constant interaction as a subject of educational activity with other subjects within this environment, readiness and ability to help, guide and coordinate their activities” [7, p. 29]. Such a dynamic and continuous process, including the rethinking of pedagogical beliefs and experience in the light of new trends in the modern digital society, is included in the concept of “digital identification of a teacher”. The digital identification of a teacher is acquired: 1) when participating in the design of a digital educational environment; 2) when striving to use cultural (digital) tools that allow to make a significant contribution to the practice of interaction between teachers and

students, which contributes to the formation of the personality of a professional [25].

To rethink the practice of higher education in the new reality, the concept of digital pedagogy is introduced and its core is designated [22], the essence and patterns of digital pedagogy, its role in the development of the personality and ways to increase its effectiveness are revealed [10]; the possibilities of digital pedagogy through the prism of historical, social and cultural factors are described [24]; the instability (internal tension) and contradictions in pedagogical activity as the driving force of development are noted [7]; the analyses of the advantages and disadvantages of digital education are carried out. All this contributes to the rethinking of changes in education, its improvement [5; 12; 30; 31], and the development of inclusion [14]. A number of studies report about good academic achievements and a positive perception of blended learning [15; 16; 17] and remote formats [18] based on electronic training courses for students of psychological and psychological-pedagogical areas of higher education.

The digital educational environment (DEE) of a university is understood as a set of digital technologies, methods and tools designed to support the educational process and the implementation of scientific activities of students and teachers, to promote learning and self-learning, the development of modern general cultural, professional and digital students' competencies required in the labor market of digital economy. DEE can include various components in various combinations, including e-learning courses hosted on digital platforms based on learning management systems — LMS (Moodle, Coursera, Stepik, etc.); web conferencing tools that support communication in the

educational process in a remote format (Miraopolis, Zoom, Cisco Webex, Google Meet, etc.); university platforms for independent students' academic achievements testing (HT-Line, etc.); university electronic libraries; digital tools and statistical packages for quantitative analysis of empirical research data (SPSS, Statistica, Mathcad, etc.); plagiarism checking tools (ANTIPLAGIAT, Copyscape, Plagiarism Checker X, etc.) and other components. For example, in Moscow State University of Psychology & Education (MSUPE) the following tools are used: open electronic library of Russian journals on Psychology and Education "PsyJournals.ru", a digital tool for analyzing publication activity SciVal, and an electronic portfolio as a means of forming a reflective attitude of students to learning [20]. MSUPE specialists have developed a digital gamified diagnostic tool PL-Modified for assessing the mental actions of schoolchildren and students [9; 13], a digital adaptive simulator for mathematical teaching of schoolchildren [11], etc.

Note, that it is incorrect to put an equal sign between the concepts of "DEE" and "distance learning", as is often done in scientific publications. DEE resources can be used in all formats of education: blended, distance and full-time education. Before the pandemic, many universities used electronic libraries, plagiarism checking tools, and standard statistical packages, but at the same time, the teaching format remained full-time. The emergence of LMS, e-learning courses (e-courses), and webinar platforms made it possible to expand these frameworks and introduce more flexible education formats. These formats require modern technical equipment and the development of digital competencies of all participants of the educational process. Experts predict that modern changes, considered as revolutionary in higher education, will be relevant in the next 50 years [21].

However, despite the widespread use of digital technology in education, there is

still little known about the extent to which teachers are ready to accept the ongoing changes. Underestimation of this can contribute to a decrease in the quality of education, since modern students have grown up in the digital environment of everyday life and require a sufficiently high level and quality of the digital educational environment. Thus, the purpose of the study was to determine the views of university teachers on new opportunities, advantages and main obstacles for the introduction of digital educational technology in the practice of higher education. To achieve the stated goal, a comparative analysis of the views of university professors with different experience in digital educational technologies was used as the main method.

## Method

The data were collected using a questionnaire that included questions on teachers' assessment of digital educational technology, considering the presence / absence of experience in their use in professional activities. The questions included a choice of several answers, in some cases it was allowed to choose several options at the same time. Questions were evaluated on a 4-point Likert scale (from 1 — disagree to 4 — agree). The study was conducted from December 2019 to September 2020 in online format. A complete list of questions and all data are presented in the MSUPE data repository RusPsyData (dataset № 3) [29].

**Sample.** The study involved 150 teachers from various universities of the Russian Federation aged from 25 to 78 years ( $48.87 \pm 11.81$  years; median = 48 years). Of these, 110 people have an experience with the development/use of e-courses. The characteristics of the participants are given in Table 1. Statistical analysis showed that the groups are equivalent in terms of gender, academic titles and scientific degrees, age, work experience, etc. (Table 1).

Table 1

**General characteristics of the participants and comparison of groups with and without experience of e-courses development/use**

Characteristics	All sample	Experience with e-courses		Statistical test: empirical value and level of statistical significance
		Yes	No	
Age, years	48.87 ± 11.81	47.93 ± 11.82	51.48 ± 11.50	U=1819.5; p=0.11
Work experience in this university, years	15.33 ± 9.68	15.95 ± 10.17	13.62 ± 8.07	U=1944.0; p=0.28
General work experience, years	23.59 ± 11.59	22.80 ± 11.31	25.75 ± 12.20	U=1921.0; p=0.24
<b>Sex</b>				
Female	114 (76.00%)	86 (78.18%)	28 (70.00%)	$\chi^2=1.08$ ; p=0.30
Male	36 (24.00%)	24 (21.82%)	12 (30.00%)	
<b>The university where you work is...</b>				
State	147 (98.00%)	108 (98.18%)	39 (97.50%)	$\chi^2=0.07$ ; p=0.79
Non-state	3 (2.00%)	2 (1.82%)	1 (2.50%)	
<b>Scientific degree</b>				
No scientific degree	29 (19.30%)	23 (20.91%)	6 (15.00%)	$\chi^2=5.61$ ; p=0.06
Candidate of Science	100 (66.70%)	76 (69.09%)	24 (60.00%)	
Doctor of Science	21 (14.00%)	11 (10.00%)	10 (25.00%)	
<b>Academic title</b>				
No academic title	61 (40.70%)	48 (43.64%)	13 (32.50%)	$\chi^2=6.40$ ; p=0.09
Assistant professor (docent)	74 (49.30%)	55 (50.00%)	19 (47.50%)	
Professor	13 (8.70%)	6 (5.45%)	7 (17.50%)	
Senior Researcher	2 (1.30%)	1 (0.91%)	1 (2.50%)	

## Results

To compare the groups, a statistical analysis was carried out for each of the questions from the questionnaire. Questions that allowed more than one answer were analyzed for each of the answers. (Pearson's  $\chi^2$ ). Spearman's rank correlation coefficient was used to determine the consistency of ratings of different answers between groups of teachers with different work experience. The results of comparison of e-courses advantages are presented in Fig. 1 and 2. They show that teachers with and without experience in using e-courses evaluate them for both students and teachers equally: their opinions are correlated ( $r_s=0.94$  and  $r_s=0.83$  for students and teachers respectively). Both groups consider access to educational materials

at any time, flexible schedule, development of self-organization skills and the possibility of effective independent work as the main advantages of e-courses for students.

The main advantages for teachers are the following: access to information at any convenient time; ease of creating tests and other evaluation tools; flexible schedule and the possibility of organizing independent work of students (Fig. 2). Some differences are observed on the questions: "the possibility to repeat what was not clear or catch up on missed material"; "the possibility to interact with teachers in a digital environment" and "access for teachers to educational materials at any convenient time". At that, these opportunities are highly appreciated by those teachers who already have experience in using e-learning courses.

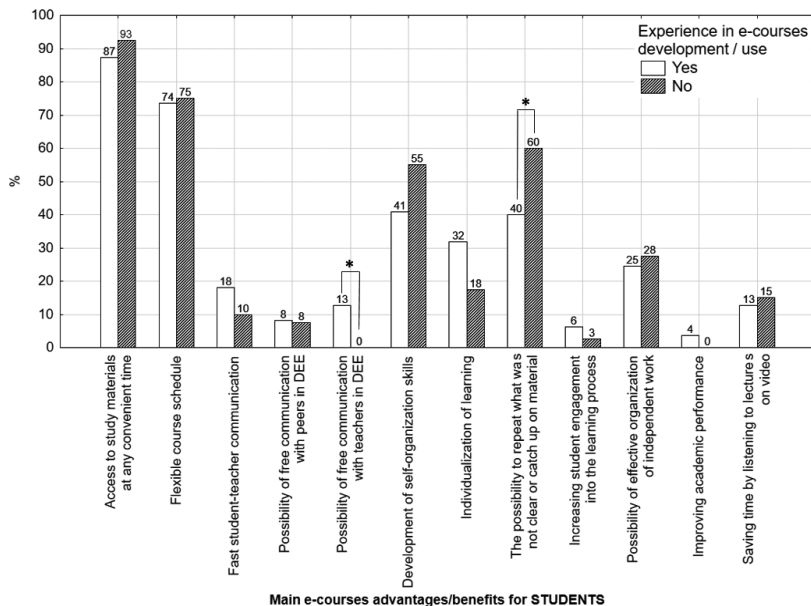


Fig. 1. The frequency of occurrence (%) of e-courses main advantages/benefits for STUDENTS, as assessed by teachers with and without experience in e-courses development/use (\* p<0.05)

In almost the same way, teachers assess the main difficulties that students may encounter when using e-courses (Fig. 3): ratings of both groups are correlated ( $r_s=0.87$ ). The most anticipated difficulties are technical failures, lack of personal contacts, the inconvenience of working with an e-course, the need to spend a long time at a computer.

A comparison of the responses of teachers with and without experience in e-courses shows that the inability of students to independently plan their time is the most important factor. The fears of teachers without experience in e-courses about the lack of prompt communication between students and teachers are not justified: only a tenth of teachers without experience and less than two percent of teachers with experience in e-courses mention such a disadvantage.

Teachers with experience in e-courses are much better aware of the documenta-

tion governing their activities in the field of e-learning and the development of e-courses, are familiar with the methodological recommendations for the preparation of e-courses and with the “Regulations on the use of e-learning courses”. However, based on the answers, this is clearly not enough, as indicated by less than half of the teachers with the experience in e-courses’ development, and up to a quarter of teachers without such experience. Some of the teachers of both groups pointed to the activities in their universities that motivate the use of e-courses (11% and 5%, respectively). At that, no one mentioned the implementation of measures to develop psychological readiness for e-courses development and use. Teachers with the experience in e-courses development are more positive about the work in the electronic environment (Fig. 4). The teachers without such experience exaggerate the frequency of technical failures, the lack of



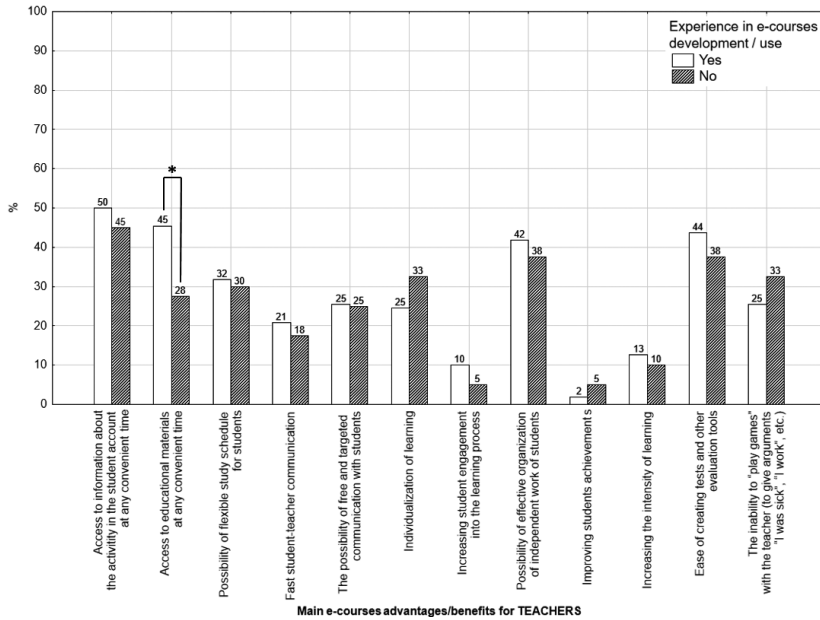


Fig. 2. Frequency of occurrence (%) of e-courses' main advantages for TEACHERS, as assessed by teachers with and without experience in e-courses' development (\*  $p < 0.05$ )

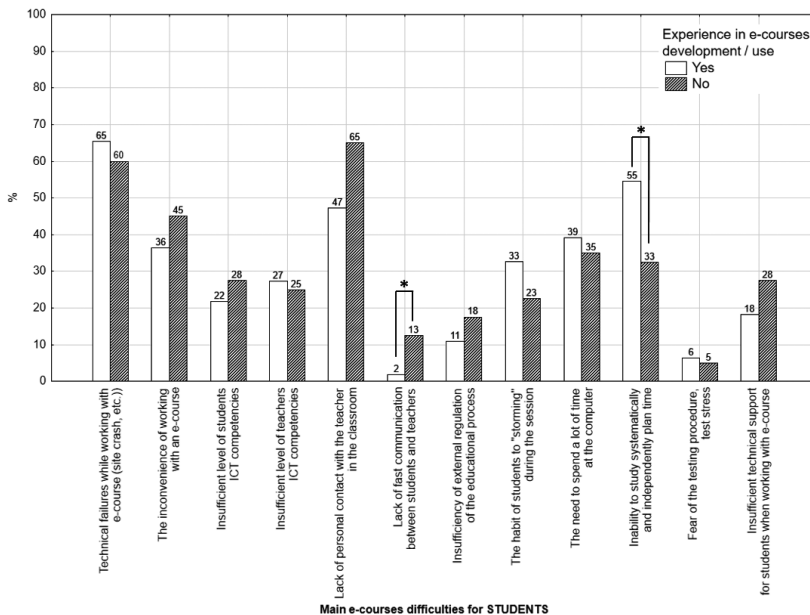


Fig. 3. Frequency of occurrence (%) of e-courses' main difficulties for STUDENTS, as assessed by teachers with and without experience in e-courses development/use (\*  $p < 0.05$ )

technical and legal support, the difficulty of monitoring the implementation of tasks almost twice compared to the real state of affairs: 85% believe they will have difficulties using e-courses, when in fact only 58% of teachers using e-courses have difficulties ( $\chi^2=9.31$ ;  $p<0.01$ ).

The majority of teachers with experience in e-courses' development indicated that they had peer support and technical support, in contrast to teachers without such experience. Only three teachers who use e-courses have reported bad experiences, but more than a third of those who do not use e-courses fear such failures in the future. Both groups indicated an increase in extracurricular workload when working with students, and teachers using the e-courses indicated this more often ( $\chi^2=12.61$ ;  $p<0.01$ ). Teachers with experience in e-courses' development were twice as likely to mention the possibilities

of e-courses: study of lecture material from videos, study of additional material; independent work with case-type electronic resources, taking tests, performing individual case-tasks as a form of control, performing group tasks, participating in discussions on the forum. Teachers without experience in e-courses' development are not sufficiently aware of these possibilities.

Cluster analysis (*k*-means method) was used to generalize the assessments of digital educational technology by university teachers and to identify different types of attitudes towards the use of e-courses. Only questions with scoring answers were used for cluster analysis. The results showed that two groups stand out: "enthusiasts" and "skeptics" (Fig. 5).

"Enthusiasts" (N=73) in contrast to "skeptics" (N=77) generally have a positive attitude towards innovations, believe that the educational process is becoming more

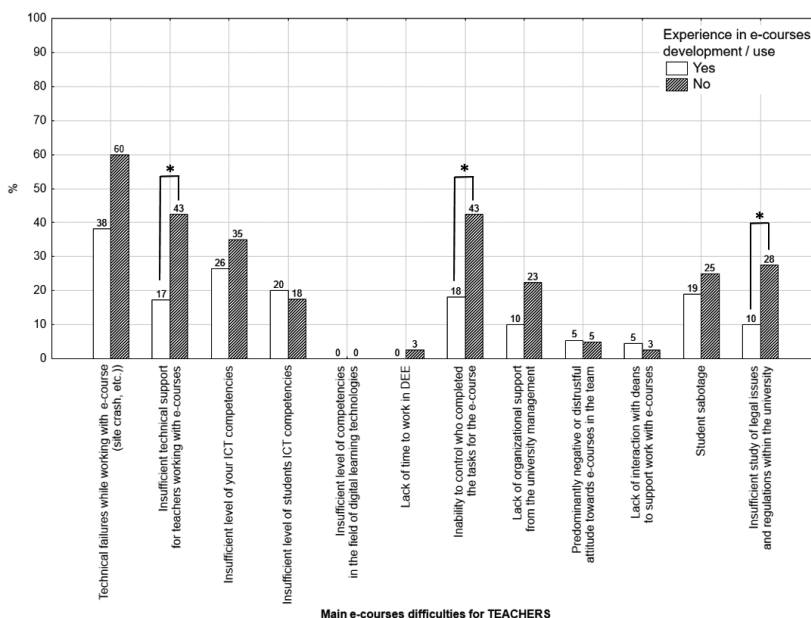


Fig. 4. Frequency of occurrence (%) of e-courses main difficulties for TEACHERS, as assessed by teachers with and without experience in e-courses' development (\*  $p<0.05$ )

flexible and more intense, note the intensity of contacts, the growth of student involvement and independence, emphasize the in-

dividualization of learning, appreciate support from management, colleagues, and technical support, note the transparency of

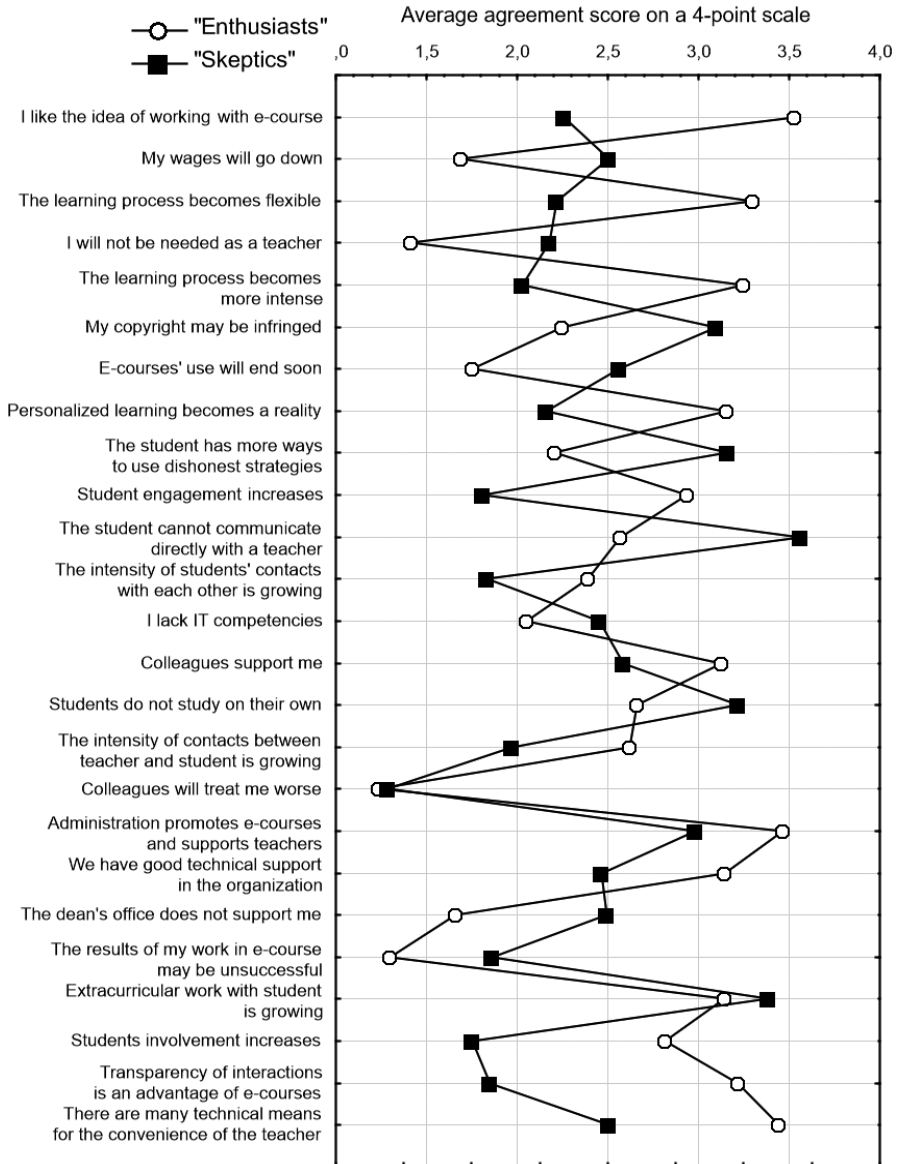


Fig. 5. Cluster analysis results: mean values for digital educational technology assessments for groups of teachers with different experiences

interaction. Among the teachers with experience in e-courses' development, enthusiasts are the majority (62%), while among teachers without experience, there are only 23% of them (Fig. 2). The difference is statistically significant ( $\chi^2=18.15$ ;  $p=0.0002$ ). At the same time, no differences were found between the clusters (groups of "enthusiasts" and "skeptics") by sex ( $\chi^2=0.03$ ;  $p=0.85$ ), scientific degree ( $\chi^2=0.14$ ;  $p=0.93$ ), academic title ( $\chi^2=4.13$ ;  $p=0.25$ ), age ( $U=2372.5$ ;  $p=0.10$ ), overall working experience ( $U=2505.0$ ;  $p=0.25$ ), and working experience at last job ( $U=2437.5$ ;  $p=0.16$ ). If we consider only teachers with e-course experience, it turns out that skeptics and enthusiasts among them do not differ by sex ( $\chi^2=0.31$ ;  $p=0.58$ ), scientific degree ( $\chi^2=0.83$ ;  $p=0.66$ ), academic title ( $\chi^2=1.21$ ;  $p=0.75$ ), age ( $U=1184.5$ ;  $p=0.13$ ), overall working experience ( $U=1257.5$ ;  $p=0.30$ ), and working experience at last job ( $U=1218.5$ ;  $p=0.20$ ).

## Discussion

The results obtained in our study are consistent with other studies. Burganova & Yuryeva [3] also found that the perception of e-courses advantages for teachers do not differ significantly in real and intended work with them. Teachers' assessments of students' difficulties in e-courses are consistent and are reduced to the main risks: "decreased social contact", which increases feelings of loneliness and individualism [4; 27]; the need to spend a long time at the computer, which affects the physical and psychological health of students [2]. The inability of students to independently plan their time is also important, which poses an additional task of preparing students for this form of education [18]. Teachers with experience in e-courses indicated an increase in extracurricular workload, which is consistent with other findings [2]. "Skeptics" and "enthusiasts" are homogenous groups in terms of socio-demographic character-

istics, but the majority of enthusiasts have experience in e-courses. Similar data were obtained in the study of Shah et al. [28]. It is suggested that differences in teachers' perceptions of the use of information technology can be explained by pedagogical beliefs that prevent the adoption of e-learning ("second-order barriers"). König et al. [26] emphasize that even teachers who belong to the digital generation and grew up in a digital environment need to develop digital competencies. All this speaks in favor of a "structural-functional model" developed by Zeer and colleagues [7]. The model provides a framework of training the teachers to use e-courses in university digital educational environment. The internal conditions for such training may be the desire of teachers of Russian universities for self-development and innovative readiness [1]. The limitations of this study are the small sample size and the lack of exploration of "second order barriers". All this becomes the prospects for further research.

## Conclusion

Digital technologies in education are new cultural information tools that are flexible, reproducible, changeable, selective, individualized, allow making a new contribution to the practice of interaction between teachers and students and contribute to the formation and development of all participants in the educational process. However, there are "second-order" barriers that prevent DEE acceptance (pedagogical beliefs that block e-learning acceptance) that remain to be explored. The results of this study allow us to state the following.

The main advantages in using digital educational technology for teachers and students, according to university professors are the access to information at any convenient time; flexible schedule and the possibility of organizing independent work of students. The main advantage for students is the development of self-organization skills,

and the main advantage for teachers is the convenience of creating tests and other assessment tools. The main difficulties for students are technical failures, lack of personal contacts, inconvenience of working with an electronic course and the need to spend a long time at a computer. The teachers with the experience in e-courses are more familiar with the documentation that governs e-learning; in general, they evaluate work in the electronic environment more positively, but emphasize an increase in extracurricular workload. The identification of groups of “skeptics” and “enthusi-

asts” made it possible to give a detailed description of the DEE. “Enthusiasts”, unlike “skeptics”, have a positive attitude towards innovations, consider the learning process more intense, emphasize the growth of student involvement and independence, individualization of learning, transparency of interaction, appreciate support from management, colleagues, and technical support. The teacher with experience in e-courses are mainly “enthusiasts”. However, more than a third still belong to the “skeptics”, as well as the majority of teachers without experience in e-courses.

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# Career Orientations and Self-centered Personality Characteristics of Future Humanities Specialists

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The article presents the results of the study on career orientations and self-centered characteristics of the personality of humanities students studied in the Institute of Social Engineering of the Siberian State University of Science and Technology named after Academician M.F. Reshetnev (N=76). The methodological basis of the work was the modern understanding of the career path as determined by the system of interrelated factors. A hypothesis about the relationship between the career orientations of future professionals in the humanities and socially expected self-centered personal characteristics is put forward. The following was applied in the study: the “Career Anchors” questionnaire, “Methodology for the Study of the Psychological Well-being of the Individual”, “Questionnaire of Self-attitude”, “Test of Meaningful Life Orientations”; for data processing — descriptive statistics and correlation analysis. The general trends in career orientations among humanities students and their features, which constitute the risk zone for productive career self-realization, are determined. It has been revealed that the student-oriented career orientations that involve high social activity is associated with the level of meaningfulness of life in combination with certain characteristics of self-attitude and psychological well-being. It is concluded that the data obtained clarify the understanding of the situation with career self-determination of future humanitarian specialists, which is necessary for the design of psychological technologies for its optimization (in education, thematic seminars and trainings, career counseling). In particular, to create optimal means of overcoming the contradiction between the orientation towards autonomy and the stability of the place of work, stimulate the orientation towards professional competence through the formation of self-interest, etc.

**Keywords:** students, humanities specialists, career, career orientations, personality characteristics, psychological well-being, self-attitude, meaningfulness of life, life-meaning orientations.

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# Карьерные ориентации и Я-центрированные характеристики личности будущих специалистов-гуманитариев

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Представлены материалы исследования карьерных ориентаций и Я-центрированных характеристик личности студентов-гуманитариев Института социального инжиниринга Сибирского государственного университета науки и технологий имени академика М.Ф. Решетнева (N=76). Методологическим основанием работы стало современное понимание карьерного пути как детерминированного системой взаимосвязанных факторов. Выдвигается гипотеза о связи карьерных ориентаций будущих профессионалов гуманитарного профиля с социально ожидаемыми Я-центрированными личностными характеристиками. В исследовании используются: опросник «Якоря карьеры», «Методика исследования психологического благополучия личности», «Опросник самооотношения», «Тест смысложизненных ориентаций»; для обработки данных — описательная статистика и корреляционный анализ. Определены общие тенденции выраженности карьерных ориентаций у студентов-гуманитариев и их особенности, составляющие зону риска для продуктивной карьерной самореализации. Выявлено, что выраженность личностно-ориентированных и предполагающих высокую социальную активность карьерных ориентаций студентов связана с уровнем осмысленности жизни в сочетании с определенными характеристиками самооотношения и психологического благополучия. Делается заключение, что полученные данные уточняют понимание ситуации с карьерным самоопределением будущих специалистов гуманитарного профиля, необходимое для конструирования психологических технологий его оптимизации (в обучении, тематических семинарах и тренингах, карьерном консультировании). В частности, для создания оптимальных средств преодоления противоречия между ориентациями на стабильность места работы в надежной организации и одновременно на автономию, стимулирования ориентации на профессиональную компетентность через формирование самоинтереса и т.д.

**Ключевые слова:** студенты, специалисты-гуманитарии, карьера, карьерные ориентации, характеристики личности, психологическое благополучие, самооотношение, осмысленность жизни, смысложизненные ориентации.

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## Introduction

The understanding of self-realization in the world of labor at the present stage of

social development is closely connected with the idea of a career. According to A.N. Demin and A.B. Sedykh, the concept

of “career is broader than the concept of “professional self-determination of the individual” [4, p. 7]. The career context of life includes “both educational, and professional, and non-professional activities; the processes of moving between organizations; entering and leaving the labor market; increasing the number of jobs or switching to part-time work; their psychological support and social effectiveness” [4, p. 7]. A career is a “labor way” in the difficult conditions of a dynamic society, which is influenced by many interacting factors. Its socio-psychological content and trajectory can be regulated both by the subject of labor activity and by social institutions interested in the optimal implementation of human resource [9]. It is no coincidence that one of the tasks of higher education is the harmonization of career potential [2]. The prospects for its solution depend on understanding which of the characteristics of future specialists, on which education at the university is focused, can be associated with career building factors in modern conditions.

Currently, the issues of motivational attitudes of employees are actively discussed in the scientific-methodological literature and applied analytics, faced by specific employers and the labor market as a whole [5; 12]. In an effort to build productive working relationships, the employer not only creates conditions for meeting the important needs of employees but also has certain expectations regarding their motivational guidelines. The research results show that modern young people are far from being easy partners in this regard. [6].

Edgar Shane’s concept of career orientations is one of the most interesting developments in the definition of career motivators; in the author’s terminology, it is called “career anchors”. Career anchors are a specialized form of social attitudes that set key guidelines for motivating professional activity and assessing the subject of his professional development [18; 19].

According to E. Shane, such orientations (anchors) are the desire to be a master of one’s craft (professional competence); the desire to interact with other people, to coordinate and manage their actions with responsibility for the end result (management); the desire to strive for autonomy and independence in professional activities, freedom from organizational framework, free labor regime (autonomy and the focus on an organization with a good reputation, work in which involves a long-term contract and stability of the position (stability of the place of work); the need for geographic and domestic stability (stability of the place of residence); the desire to work with people and be useful to them, to “improve the world” based on moral values in professional activities (service); striving for competition, victory over others, overcoming obstacles with an assessment of “win-lose” (challenge); the desire to create their own business that brings wealth, with a willingness to take risks for this (entrepreneurship); striving for balance in the life of its main areas: family, work, self-development (integration of lifestyles).

The consistency between these important guidelines for employees and the opportunities provided by the organization for their implementation largely determines satisfaction with professional activities and even their effectiveness [17; 20]. The set of career anchors constitutes an internal idealized image of a career, with which the employee compares reality [20; 21]. This image structures human activity, being a supporting “guide” but at the same time a limiter in building career trajectories [3].

It seems that the consideration of career orientations as a desired way of self-realization in the sphere of work should also be linked to the broader context of research into the general life aspirations of modern young people at the stage of receiving professional training. In this case, we can find the significant figures. For example, in

E. Vasilevskaya's comparative research of possible "I" associated with the profession in Russian and American students. According to results, Russian students are significantly less likely than American students to name hopes and fears in the sphere of the profession as future images that are significant for themselves and more often localize significant images of the "I" in the sphere of family and relationships; and they also believe less that their hopes will come true in the professional sphere, and less believe that their hopes are close to the real "I" [1].

It is important to note that, according to studies, over the past ten years there has been a negative trend towards an increase in the rates of depression symptoms and anxiety in the Russian student population [14]. Researchers believe that the reason may be the growth of perfectionism, especially as it is socially prescribed. The indicators in the Russian student sample of the cognitive perfectionist style, consisting of painful reflections on one's own imperfection, fixation on mistakes, and a tendency to unproductive rumination, have doubled [14; 21].

These figures are significant, as mentioned above, due to the fact that career orientations are a particular type of social attitude, and even if we consider them a relatively independent phenomenon, we cannot ignore the fact that they are integrated into the integral system of a person's worldview and his self-realization orientation [15]. In addition, the perfectionist motivators of young people enrolled in higher education are largely set by the guidelines for a productive personal existence developed by representatives of philosophical and psychological thought. Socially desirable are certain characteristics of the individual and his relationship to himself and to the world. This applies in particular to humanitarian students. In fact, the content of key educational programs and the teachers' serious professional position and the form of education are focused on the values of these

personal characteristics. As ideal models, students consider the personal characteristics that, in general terms, can be qualified as self-centered: psychological well-being, positive self-attitude, meaningfulness of life, etc. Currently, it is little known how these characteristics are reflected in relation to professional activity. And such facts can be useful for improving the quality of psychological content, the realism of career counseling, and teaching the psychological foundations of professional activity.

### **Methodological Support and Empirical Base of the Study**

The study was sent to clarify this issue, and the respondents were graduate students of the Institute of Social Engineering at Reshetnev Siberian State University of Science and Technology, 76 people aged 20 to 25 years. There were 67 female respondents and 9 male respondents. The study examined the career orientations and self-centered personal characteristics of students (psychological well-being, self-attitude, and meaningfulness of life). The hypothesis of this is that the career orientations are associated with the severity of self-centered personal characteristics in students.

The methodological support for the study was:

1. Questionnaire "Career Anchors" by E. Shane, adapted by V.A. Chiker [15], including scales: 1) "Professional competence"; 2) "Management"; 3) "Autonomy"; 4) "Stability of the place of work"; 5) "Stability of the place of residence"; 6) "Service"; 7) "Challenge"; 8) "Entrepreneurship"; 9) "Integration of lifestyles."

2. T.D. Shevelenkova, P.P. Fesenko's methodology for the study of the individual's psychological well-being by (MSIPW), an adapted version of the Riff's Psychological Well-Being Scale questionnaire [16] with the Self-acceptance scales (positive attitude towards oneself, recognition and acceptance of one's own personal diver-

sity, positive assessment of one's past); "Positive relationships with others" (close, pleasant, trusting relationships with others, caring for others, the ability to empathize, the ability to find compromises); "Autonomy" (independence, the ability to resist social pressure in thoughts and actions, the ability to regulate one's own behavior and evaluate oneself based on one's own standards); "Management of the environment" (a sense of confidence and competence in managing everyday affairs, the ability to effectively use various life circumstances, to choose and create conditions that satisfy personal needs and values); "Purpose in life" (the presence of life goals, beliefs that give meaning to life); "Personal growth" (a sense of continuous self-development, awareness of one's own personal growth, realization of one's potential).

3. Self-attitude questionnaire of by V.V. Stolin, S.R. Pantileev (SAQ) [13], which reveals the characteristics of self-attitude at three levels of generalization:

1) Global self-attitude: scale S (integral feeling "for" or "against" one's own "I");

2) Self-attitude, differentiated on four scales: I — self-esteem (belief in one's strengths, abilities, energy, independence, assessment of one's ability to control one's own life and be self-consistent, self-understanding); II — autosympathy (friendliness-hostility to one's own "I"); III — expected attitude from others; IV — self-interest (interest in one's own thoughts and feelings, confidence in one's interest for others);

3) Characteristics of specific actions (readiness for them) in relation to one's "I": self-confidence; the attitude of others; self-acceptance; self-leadership; self-consistency; self-accusation; self-interest; and self-understanding.

4. Test of meaningful life orientations by D.A. Leontiev (MLO) [8] (an adapted version of the Purpose-in-Life Test, PIL), which includes the following scales: "Goals in life" (the presence of goals that give meaning

to life, direction, and time perspective in the future); "The process of life" (to what extent the process of life is perceived as interesting, emotionally rich, and filled with meaning); "The effectiveness of life" (satisfaction with self-realization, assessment of the productivity, and meaningfulness of the passed segment of life); "Locus of control — I" (perception of oneself as a strong personality with sufficient freedom of choice to build one's life in accordance with one's goals and objectives and ideas about its meaning); "Locus control of life" (feeling of controllability of life).

Methods of mathematical processing are descriptive statistics (determination of mean values and standard deviation, ranking), correlation analysis (Spearman's rank correlation coefficient), and calculation of statistical indicators was performed using the computer statistical program *Statgraphics Plus*.

## Results and Discussion

According to Kolmogorov-Smirnov's criterion, the analyzed sample does not belong to samples with a normal distribution.

To determine the general trends in the severity of different career orientations in the sample of humanities students, the average values of the indicators on the scales of the Career Anchors questionnaire were determined and ranked in descending order (the minimum possible value is 1 point, the maximum is 10 points). The descriptive statistics of the "Career Anchors" methodology are shown in Table 1.

The career orientation towards the stability of the place of residence was the least expressed in the general tendency of the sample of humanities students. Moreover, it seems to be a manifestation of the geographical mobility common to modern young people. According to humanities students' data, a work place should be stable. The desire to have a long-term contract and a stable position in a company with a

Table 1

**Descriptive statistics of the indicators of the “Career Anchors”  
method by E. Shane**

	1	2	3	4	5	6	7	8	9
	Work stability	Lifestyle integration	Autonomy	Service	Entrepreneurship	Management	Challenge	Professional Competence	Stability of the place of residence
Average value	7.5	7.2	7.04	7.04	6.3	6.18	5.58	4.7	4.2
Standard deviation	1.89	1.57	1.36	1.86	1.57	2.04	1.73	2.0	2.27

good reputation is at the top of their career orientation hierarchy. A few career anchors, which can be defined as personality-oriented, have a smaller but rather higher severity: “lifestyle integration”, “autonomy”, and “service”. The indicators of career orientations towards entrepreneurship, management, and challenge have an even lower level of average value, for which the requirements of activity in social interaction and willingness to take risks are uniting. The average value level of the orientation indicator to professional competence (the desire to be a master of one’s craft) is lower than that of all the other listed career anchors, except for the very insignificant anchor of the stability of the place of residence.

As we see it, there is a difficult contradiction between the expressed motives of organizational belonging (anchor “stability of the place of work”) and, at the same time, independence from organizational regulations (anchor “autonomy”) in this career orientation hierarchy of future specialists in the humanities.

The described trends in the severity of career orientations can be interpreted as a reflection in the sphere of motivational guidelines for career self-determination of humanities students of the generation Z characteristics that are identified in foreign analytical literature. These are characteristics such as a high degree of individualization; pragmatism (focus on success, which

implies an accurate “estimate” of the necessary costs and efforts), lost profit syndrome (fear of missing out on something important, for example, in choosing a place of employment that could affect life status), focus on correcting the shortcomings and shortcomings of the world around (feeling of a certain closeness in the role of a “healer”), independence [6]. However, “motivation” (competitiveness), which appears in foreign analytical literature as an important characteristic of modern young people [6], was less pronounced in the career orientation hierarchy of the participants in this study. This may be due to the fact that young Russians, as mentioned above, are less confident in the prospects for their professional capacity than their Western counterparts [1], and with the absolutization of the values of maximum favoring a comfortable and harmonious personal self-manifestation in modern liberal arts education.

Table 2 shows the significant correlations between the career orientations of the students who took part in the study and their personal characteristics.

Indicators of the severity of personality-oriented (integration of lifestyles, autonomy, and service) and requiring social activity (entrepreneurship, management, and challenge) career orientations have multiple direct links with indicators of life meaningfulness and with some of the indicators of self-attitude and psychological well-being. It can be said that subjective responsibility

Table 2

**Interrelation of indicators of career orientations with indicators psychological well-being, self-relationship and meaningfulness of life**

Methods	Parameters of personal characteristics	Career Anchors								
		Professional Competence	Management	Autonomy	Work stability	Stability of the place of residence	Service	Challenge	Entrepreneurship	Lifestyle integration
MSIPW	Positive relationship									
	Autonomy			.27*						
	Personal growth			.23*						
	Self-acceptance			.25*						
	S			.26*						
SAG	(I) Self respect									
	(III) Expected ratio			.26*						
	(IV) Self-interest	.24*			.28*		.24*			
	Self-confidence		.28*							
	Self-accusation									.21*
	S								.22*	
MLO	Goals in life		.27*							.35**
	life process			.30**			.30**			
	The result of life			.23*				.26*		.25*
	Locus of control-I		.29**	.27*			.31**	.31**		.39**
	Locus of control-life			.22*					.22*	.22*
	Meaningfulness of life		.26*	.27*				.25*	.23*	

Notes. \* significant correlation ( $p \leq 0.05$ ); \*\* highly significant correlation ( $p \leq 0.01$ ).

ity and semantic richness in key aspects of life contribute to a greater formalization of the career orientations of humanities students who are preparing to enter the labor field. And which of these orientations in this aspect will be a priority is associated with the characteristics of the components of self-relationship and the psychological well-being of the student's personality. This can be expressed in terms of the following:

— Meaningfulness of life, combined with psychological well-being, stimulates a career orientation towards autonomy;

— Meaningfulness of life, combined with a certain degree of self-accusing tendencies in the self-attitude, stimulates a career orientation towards the integration of lifestyles;

— Meaningfulness of life, combined with self-confidence, stimulates a career orientation towards management;

— Meaningfulness of life, combined with a pronounced self-interest and the positive nature of the expected attitude of others, stimulates a service orientation;

— Meaningfulness of life in the aspect of the locus control of the "life", combined with a positive self-attitude, stimulates an orientation towards entrepreneurship;

— Meaningfulness of life, combined with a lack of positive relationships with others, stimulates the competitive career orientation "challenge".

Among the personality characteristics under consideration, the smallest repertoire of connections is found in indicators



of psychological well-being. And these connections are densely concentrated. There is only one connection, and it's the indicator of positive relations with the severity of the career orientation "challenge" (reverse relationship, meaning that the motivation to overcome in work to a certain extent contributes to low confidence and satisfaction in relations with others). All other significant links in indicators of psychological well-being are with the indicator of the severity of the career anchor "autonomy", the essence of which is the desire for freedom from organizational rules, regulations, and restrictions, the implementation of one's own standards of action. The severity level of the indicator of this career orientation is associated with the levels of the general indicator of psychological well-being and its characteristics that support the inherent value of individuality ("independence from external pressure and assessments", "desire for self-realization and self-development", "acceptance of one's individuality"). From our point of view, in the context of the above-mentioned contradiction between the motives of stable organizational affiliation expressed by students and, at the same time, independence from organizational regulations, it is valuable to correlate these figures with the results of earlier studies by Ya.I. Pavlotskaya and ours, which examined the relationship of psychological well-being with socio-psychological characteristics and professionally significant personality traits. And this connection in terms of favoring social and professional productivity, as it turned out, is ambiguous. The research participants are future and current specialists, whose subjects of professional activity include the reality of human relations as a significant component. Investigating the relationship of the socio-psychological characteristics of a personality with the psychological well-being of students, Ya.I. Pavlotskaya revealed that young people with higher levels of psy-

chological well-being who are confident in themselves and in their personal potential limit self-realization to a close circle of friends. They tend to avoid active interaction with social reality, evaluating social processes as distant and incomprehensible with a negative emotional connotation [11]. Our study examined the relationship between psychological well-being and professionally significant qualities of young leaders in the oil and gas industry. The message to carry out was the complexity of relationships in the organizational vertical of the enterprise. Initially, it was assumed that the psychological well-being of leaders was an important factor in the self-realization of the leaders themselves and, as a result, the productivity of organizational relations. The results of the study showed that the role of psychological well-being in managerial activity is not so clear. Its higher levels of the manager's work correspond to the following: on the one hand, a productive attitude to work; and on the other hand, a relatively low focus on people with high levels of desired satisfaction in professional activity for their own needs [10].

We also draw attention to two important facts, in our opinion.

The first is that the severity of career orientation towards professional competence is not associated with indicators of life meaningfulness. This may be one of the effects of a change in the value paradigm of the world of work, in which calls for the formation of universal soft skills and professional mobility began to dominate.

The second significant fact is the direct correlation of the indicator of the self-interest scale (proximity to one's self, interest in one's thoughts and feelings) with the severity of career orientations for professional competence, service, and job stability. Such a composition can be seen attractive to employers who rely on serious and stable work contributions from their employees.

We should note that the results of the study show that the respondents were students in their final year of humanitarian specialties.

According to the significance rating for humanities students, career orientations form a level hierarchy: 1) the most pronounced career orientation is towards the stability of the place of work; 2) the sufficiently expressed orientation at the high level are towards the integration of lifestyles, autonomy and service, which can be grouped as “personally oriented”; 3) less pronounced orientations are towards entrepreneurship, management and challenge, which can be combined with a sign of social activity and risk taking; 4) the least pronounced career orientations are professional competence and stability of the place of residence.

The severity of personality-oriented career orientations that require social activity is directly related to the meaningfulness of life. The peculiarities of self-attitude and psychological well-being of the individual are associated with the kind of career orientation that is enhanced by the positive influence of the meaningfulness of life.

Orientation towards professional competence ranks low in the hierarchy of severity of humanities students' career orientations and is not related to the meaningfulness of life.

The combination of a high interest in the stability of the place of work and, at the same time, in autonomy and independence from organizational regulations, which characterizes the sample of humanities students, can be a serious source of difficulties in terms of their employment prospects due to its inconsistency. This contradiction acquires additional shades when taking into account the fact that the severity of the orientation towards autonomy is directly related to the indicators of the meaning of life and the psychological well-being of students.

Such a characteristic of self-attitude as self-interest deserves special attention, since the severity of orientations towards professional competence and service is positively associated with its level, and this characteristic can be formed in the learning process.

## Conclusion

In the modern world, a career is a process determined by a complex system of many inter- and intrapsychic factors. Understanding their interaction is necessary for a more meaningful construction of career strategies and the optimal implementation of human resources in labor activity. This is especially true for young people receiving vocational education. Since career orientations are a particular type of social attitudes built into the general system of attitude towards oneself and the world, and young people are highly oriented towards socially desirable patterns of personal existence, it is important to examine how the characteristics corresponding to these patterns manifest themselves in attitudes in the sphere of labor activity. The education of humanitarian specialties students in the value aspect is focused on self-centered personality characteristics, the idea of the desirability of which has been developed by the authorities of philosophical and psychological thought (psychological well-being, positive self-attitude, meaningfulness of life).

The conducted research confirmed a suggested assumption about the connection between the career orientations of future humanitarian specialties and self-centered personal characteristics and made it possible to clarify information about the structure of this connection.

The obtained results can be useful for a general understanding of the situation with career self-determination of future humanitarian specialists and for designing psychological technologies for its optimization (in education, thematic workshops and trainings, career counseling). Particu-

larly relevant is the search for and creation of means to overcome the contradiction between two simultaneously expressed career anchors: an orientation towards a stable, reliable place of work and an orientation towards autonomy, freedom from organizational regulations. There is also a great deal of interest in the possibility of

stimulating the orientation towards professional competence through the formation of self-interest.

Further study of the identified issue involves checking the identified trends on other samples of humanities students, as well as comparative studies with samples of students of different profiles.

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# Teachers' Coping Strategies and Job Satisfaction in Distance Teaching During the COVID-19 Pandemic

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The article presents the results of an empirical study, which aims to analyze the relationships between teachers' coping strategies and job satisfaction in distance teaching during the COVID-19 pandemic. The study sample consisted of primary school teachers from two large regions in Russia (N=313). The main method was a survey. The questionnaire included the following topics: respondents' demographic information, coping strategies, job satisfaction, technical tools used for distance learning, forms of school administration support, learning events for teachers, as well as applied practices. The results of the logistic regression analysis showed that there is a positive relationship between using productive coping strategies and job satisfaction. The coping strategies "positive reassessment" and "distraction to a pleasant activity" are associated with the identified components of job satisfaction in the process of distance teaching: school support ( $R^2=0.493$ ), cooperation with colleagues ( $R^2=0.322$ ), communication with parents ( $R^2=0.352$ ) and communication with students ( $R^2=0.275$ ). It was also determined that the relationship between job satisfaction and some factors such as school administration support and the possibility of applying new practices.

**Keywords:** coping strategies, job satisfaction, teachers, pandemic.

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# Копинг-стратегии и удовлетворенность работой у учителей в условиях дистанционного преподавания во время пандемии COVID-19

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Представлены результаты эмпирического исследования, целью которого являлся анализ взаимосвязи копинг-стратегий и удовлетворенности работой у педагогов в условиях дистанционного преподавания в период пандемии COVID-19. В выборку исследования вошли учителя начальных классов из двух крупных регионов Российской Федерации (N=313). В качестве основного метода использовался опрос. Анкета включала следующие блоки: общая демографическая информация о респондентах, копинг-стратегии, удовлетворенность работой, технические средства дистанционного обучения, формы поддержки школы, обучающие мероприятия для учителей и прикладные практики. В ходе логистического регрессионного анализа было подтверждено теоретически обоснованное предположение о том, что использование адаптивных копинг-стратегий взаимосвязано с удовлетворенностью работой у педагогов. Копинг-стратегии «положительная переоценка» и «отвлечение на приятное занятие» связаны с выделенными компонентами удовлетворенности работой в процессе дистанционного преподавания: поддержка школы ( $R^2=0,493$ ), кооперация с коллегами ( $R^2=0,322$ ), коммуникация с родителями ( $R^2=0,352$ ) и коммуникация с учащимися ( $R^2=0,275$ ). Также была определена связь удовлетворенности работой с такими факторами, как поддержка школы и возможность применения новых практик.

**Ключевые слова:** копинг-стратегии, удовлетворенность работой, учителя, пандемия.

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## Introduction

The COVID-19 pandemic has had an unprecedented impact on the education system. The previously existing general trend towards the digitalization of the educational process [8] in the spring of 2020 has become a necessity, and by now it has become a common occurrence [9; 10].

The work of a teacher, even under normal conditions, is associated with more stress than in other professions [26; 28; 35]. The need to master digital teaching technologies is highlighted among the main stress factors for representatives of this profession [2; 14], and the pandemic led to an increase in negative experiences due to this process [5]. Therefore, it is important to look for tools to reduce these experiences. The formation of adaptive coping behavior can be one of the practices for increasing the level of subjective well-being of teachers [34]. At the same time, the level of job satisfaction can serve as an indicator of well-being here [27].

In our earlier works [5; 33] the experience of using various coping strategies by representatives of the teaching community was studied. Based on qualitative research and literature analysis we suggested that there are coping strategies that are most adequate to the requirements of the teaching profession. Among them, we identified the following: positive reappraisal (creating a positive sense of the situation) and the search for social support (search for informational, effective and emotional support from other people). The purpose of this study was to identify the relationship between the coping strategies used and job satisfaction of teachers in the process of transition to distance teaching during the pandemic.

## Coping strategies for teachers

People use coping strategies designed to make being under stress easier. These behavioral strategies are called “copings”. This term was first introduced by R. Lazarus [22]. He singled out two main functions of coping: regulation of emotional states and elimination of an emerging source of stress. In accordance with these functions, two types of copings were distinguished: emotionally focused and problem-oriented [23]. The first type includes, for example, positive reappraisal and denial, the second type includes action planning and confrontation [6].

The situation of the COVID-19 pandemic has heightened the interest of researchers and practitioners in the problem of the variability and effectiveness of coping behavior. In particular, this issue was investigated in a professional-specific context, where a segment called “helping professions” was identified, which included teachers. Thus, it was shown that during the COVID-19 pandemic with its unique physical and emotional problems, representatives of this profession used both types of coping [19]. However, it is noted that emotionally oriented coping strategies predominate in the teacher sample [12]. At the same time, there is a wide variation in the use of coping strategies of this type, such as positive reappraisal rethinking with attempts to idealize the situation or the manifestation of aggressive denial [24; 37]. Such situation, when, on the one hand, we fix the polar application of coping strategies, and, on the other hand, the established patterns of behavior, cannot be regarded as effective. It is generally accepted that the combination of emotion-focused coping and problem-foc-



cused coping reduces the risk of emotional burnout [6].

However, today the question remains as to what combination of coping strategies is the most effective in maintaining teacher's well-being, which is an important element of job satisfaction.

### **Job satisfaction for teachers**

In the framework of this study, we will understand job satisfaction as "positive or negative value judgments that people make about their work" [43, p. 177]. Such judgments are a subjective assessment of psychological, physiological and environmental conditions and factors that together provide a positive attitude towards work, which, in turn, increases labor efficiency and the level of general well-being [13]. Despite the changes that are taking place in the modern world, maintaining a high level of satisfaction with professional activities among teachers remains an important aspect, since this indicator affects motivation and learning of students [21].

The main sources of job satisfaction for teachers are the motive to change the lives of others for the better, a sense of belonging, as well as positive emotions received from work [36]. External sources of job satisfaction include status, salary, and support from the administration and colleagues [11; 15].

Research on satisfaction with remote work has been carried out over the past decade [17; 31; 34], while during the pandemic, during the mass transition to remote work, they became especially relevant [16; 40]. The results of studying satisfaction with remote work among teachers showed that teachers experienced stress during the transition to distance teaching, which reduced their level of job satisfaction [18; 41; 44].

One of the practices for increasing job satisfaction is the formation of adaptive coping behavior [38; 42]. It can be assumed that there is a certain set of coping strate-

gies that meet the needs of teachers, that requires further research in this direction.

Our earlier studies, based on a series of interviews, made it possible to determine which coping strategies teachers consider the most adaptive for representatives of their profession [5; 33]. According to educators, positive reappraisal, seeking social support, and distraction to pleasurable activities (hobbies, walking with pets) are the most effective. Continuing our work in this direction our aim is to test our assumptions that these coping strategies identified by teachers are correlated with job satisfaction.

## **Organization and Research Methods**

### ***Sample description***

The study sample consisted of 313 female teachers working in the first and third grades of general secondary schools, gymnasiums and lyceums in two large regions of Russia.

### ***Data collection procedure***

The survey was conducted as part of a monitoring study of educational progress in online format in September-October 2020 [3].

### ***Tools***

In order to assess coping strategies two scales of the Coping Methods Questionnaire by T.L. Kryukova [4]: "Positive reappraisal" (Cronbach's Alpha coefficient=0.84; k=7) and "Search for social support" (Cronbach's Alpha coefficient=0.82; k=6) were used. An appropriate scale was developed to assess the distraction strategy for a pleasant activity (Cronbach's Alpha coefficient=0.82; k=5). A 4-point Likert scale ranging from "never" to "often" was used for these three scales.

Job satisfaction was assessed on the following aspects of distance teaching: school support, cooperation with colleagues, communication with parents, and communication with students. Each

aspect was measured on a 4-point scale from “Not at all satisfied” to “Completely satisfied”.

Additionally, demographic and context information was collected such as distance learning technology, school administration support, teacher training events, and applied practices.

### **Description of data analysis**

The study used logistic regression analysis, a binary choice model with control for contextual factors such as distance learning practices, school administration support, and teacher training activities. These variables were identified based on theoretical analysis and previous qualitative studies [5; 33]. Coping strategies were independent variables. As dependent variables, we identified the selected components of teachers’ job satisfaction. For each component the regression model was conducted.

## **Results**

### **The main components of job satisfaction for teachers**

To answer the main research question, we analyzed the job satisfaction of teachers during the process of distance teaching. The distribution of teachers’ answers depending on the level of their satisfaction is presented in Table 1.

In general, in the sample, the majority of respondents (from 44% to 51%) are partially satisfied with the distance learning process. However, some teachers (from 18% to 23%) are not satisfied with the distance learning process in terms of certain indicators.

The teachers who participated in the study note the highest level of satisfaction in cooperation with colleagues. At the same time, the largest number of respondents were completely dissatisfied with the school administrative support. It should also be noted that more than a quarter of the teachers surveyed were completely satisfied with communication with students and their parents.

### **Coping strategies of teachers in the transition to distance teaching**

Quantitative analysis of coping strategies showed that most often the respondents of this study used such coping strategies as positive reappraisal and distraction to a pleasant activity. High values were demonstrated by more than 30% of the respondents. Low values according to these coping scales were demonstrated by 24% of respondents. It should be noted that the “search for social support” coping strategy was used by only 13% of the respondents. Data on the frequency of use of coping strategies are presented in Table 2. The levels are revealed for ease of inter-

Table 1

**Distribution of teachers’ answers depending on their level of job satisfaction (N, %)**

Answer options	School support		Cooperation with colleagues		Communication with parents		Communication with students	
	N	%	N	%	N	%	N	%
Not at all satisfied	22	7.1	7	2.2	11	3.5	9	2.9
Not satisfied	57	18.3	59	18.9	62	19.7	71	22.9
Partially satisfied	142	45.7	138	44.2	162	51.4	141	45.5
Completely satisfied	90	28.9	108	34.6	80	25.4	89	28.7
Total	311	100.0	312	100.0	315	100.0	310	100

Table 2

**Distribution of teachers' answers depending on the frequency of using coping strategies (N, %)**

	Positive reappraisal		Seeking social support		Distraction to a pleasant activity	
	N	%	N	%	N	%
Low values	75	24	118	38	76	24
Averages	131	42	155	49	135	43
High values	106	34	41	13	107	33
Total	312	100.0	314	100.0	313	100.0

pretation of the table, then in the regression analysis a full quantitative scale was used, thus, the entire variation of the independent variable was considered.

***Analysis of the relationship between coping strategies and job satisfaction of teachers in distance teaching***

The study used the method of logistic regression, the purpose of which was to

analyze the relationship between job satisfaction and coping strategies. Answers to questions about satisfaction were translated into a binary scale: "Fully satisfied" and "Partly satisfied" — satisfied, "Not satisfied" and "Not at all satisfied" — not satisfied.

Four regression models were built to analyze the interaction between coping strategies and job satisfaction among teachers. The results of the regression analysis are presented in Table 3.

Table 3

**Results of multiple regression analysis by stepwise exclusion of independent variables**

Dependent variable	Predictors	Regression coefficient B	Standard error S.E.	Significance
Satisfaction with school administration support	Informational support of school administration	-2.809	.706	.005
	Organizational support of school administration	1.176	.464	.011
	Events for the exchange of experience among colleagues	.878	.437	.045
	Positive reappraisal	.144	.051	.005
	Distraction to a pleasant activity	.220	.060	.005
	Constant	-2.341	.960	.015
Universal coefficient criteria and general summary of model 1 $\chi^2=123.379$ ; Df=5; Sig=.000; -2LI=221.056 <sup>a</sup> ; R <sup>2</sup> (Nadelkerkes)=.493				
Satisfaction with cooperation with colleagues	Parent advice on lesson content	.401	.148	.007
	Information support of school administration	.686	.377	.069
	Positive reappraisal	.109	.048	.021
	Distraction to a pleasant activity	.159	.056	.004
	Constant	-3.866	.775	.005
Universal Coefficient Criteria and General Summary of Model 2 $\chi^2=70.122$ ; Df=4; Sig=.000; -2LI=241.361 <sup>a</sup> ; R <sup>2</sup> (Nadelkerkes)=.322				

Dependent variable	Predictors	Regression coefficient B	Standard error S.E.	Significance
Satisfaction with communication with parents	Parent advice on lesson content	.566	.144	.004
	Positive reappraisal	.151	.048	.002
	Distraction to a pleasant activity	.139	.053	.009
	Constant	-4.502	.786	.004
Universal Coefficient Criteria and General Summary of Model 3 $\chi^2=81.031$ ; Df=3; Sig=.000; -2LI=252.461 <sup>a</sup> ; R <sup>2</sup> (Nadelkerkes)=.352				
Satisfaction with communication with students	Preparation of special instructions for doing homework / mastering the material	.323	.160	.043
	Conducting events not related to the educational program	.301	.144	.036
	Positive reappraisal	.112	.047	.016
	Distraction to a pleasant activity	.113	.051	.026
	Constant	-3.800	.774	.009
Universal Coefficient Criteria and General Summary of Model 3 $\chi^2=63.096$ ; Df=4; Sig=.000; -2LI=286.859 <sup>a</sup> ; R <sup>2</sup> (Nadelkerkes)=.275				

Note. List of independent variables included in the following models: Preparation of special instructions for doing homework/mastering the material; Conducting activities not related to the educational program; Consulting parents on the material of the lesson; Informational support; Organizational support; Technical support; Training in methods of remote work; Events for the exchange of experience among colleagues; Positive reappraisal; Distraction to a pleasant activity; Seeking social support.

The first regression model identified five predictors of “satisfaction with school administration support”, one was negative. At the same time, a positive relationship with two coping strategies is stated — “positive reappraisal” and “distraction to a pleasant activity” (B=0.144, s.e.=0.051, p<0.01 and B=0.220, s.e.=0.06, p<0.01). The R<sup>2</sup> value is 0.493 and shows that the empirical data are broadly consistent with the hypothetical model describing the relationship of the “satisfaction with school administration support” variable. In the study, we used the Nadelkerkes R<sup>2</sup> indicator, which reflects how the data fit the model.

The results of the second model showed that the coping strategies variables “positive reappraisal” and “distraction to a pleasant activity” are directly related to the indicator “satisfaction with cooperation with colleagues” (B=0.109, s.e.=0.048, p<0.01 and B=0.159, s.e.=0.056, p<0.01). The R<sup>2</sup> value is 0.322 and shows that the empirical data are generally consistent with a hypothetical model that describes the re-

lationship of the variable “satisfaction with cooperation with colleagues”.

The third model demonstrates that the coping strategies variables “positive reappraisal” and “distraction to a pleasant activity” are directly related to the indicator “satisfaction with communication with parents” (B=0.151, s.e.=0.048, p<0.01 and B=0.139, s.e.=0.053, p<0.01).

The R<sup>2</sup> value is 0.352 and shows that the empirical data are generally consistent with a hypothetical model that describes the relationship of the variable “satisfaction with communication with parents”.

The fourth model presents four predictors, among which two variables of the use of coping strategies — “positive reappraisal” and “distraction to a pleasant activity” — have a direct relationship with the indicator “satisfaction with communication with students” (B=0.112, s.e.=0.047, p<0.01 and B=0.113, s.e.=0.051, p<0.01). The R<sup>2</sup> value is 0.275 and shows that the empirical data are generally consistent with a hypothetical model describing the relationship of

the variable “satisfaction with communication with students”.

Also, each of the presented models included additional predictors, the statistical data on which are presented in Table 3.

The compiled regression models show that the use of two coping strategies — “positive reappraisal” and “distraction to a pleasant activity” — has a positive relationship with each of the four identified components of job satisfaction in the process of distance teaching.

The coping strategy “search for social support” was not significant for any of the regression models, which indicates that we did not find evidence that the use of this strategy can be a predictor of job satisfaction.

### **Discussion of Results and Conclusions**

In this study, we checked whether there is a relationship between the identified coping strategies and job satisfaction in the process of distance teaching. It was found that the respondents were more satisfied with cooperation with colleagues, at the same time, the least satisfaction was observed with regard to support from the school administration. This result can be interpreted in two ways. On the one hand, it can be assumed that in the situation of an emergency transition to distance teaching, teachers counted more on the support and assistance of the pedagogical community, as they experienced identical difficulties. On the other hand, it seems that expectations of support from the school administration have not been fully met. At the same time, contact with the school administration was associated with a large amount of diverse information and multidirectional instructions that came during the distance teaching period, which increased the workload of teachers many times over. In addition, it is of interest that the respondents were more satisfied with

communication with students and their parents than with the support of the school administration.

The data obtained are consistent with the results of previous studies [29; 30] and show that teachers need support, it will increase their job satisfaction.

The analysis of the coping behavior of teachers in the context of the transition to distance teaching revealed that most often teachers in the sample of this study used two coping strategies: “positive reappraisal” and “distraction to a pleasant activity”. It is interesting that the respondents much less often chose the strategy of “search for social support” (support of loved ones, specialists). This result does not correlate with previous studies, which showed that this strategy is most often used by teachers [8]. It can be assumed that this is due to the uniqueness of the pandemic situation, when the need for support was experienced by most people. Teachers did not ask so much for support, rather they had to provide it (both to their close circle, and to students and their parents). Perhaps it was more difficult for teachers to ask for social support due to overload with work functions and insufficient time resources.

The present study partially confirmed the hypothesis that there is a relationship between the use of adaptive coping strategies (“positive reappraisal” and “distraction to a pleasant activity”) and job satisfaction of teachers. It can be assumed that a positive reappraisal helped teachers perceive the forced transition to distance teaching as a process of self-development and learning new experience. The strategy of “distraction to a pleasant activity” could be an effective tool for regulating the balance between work and personal life.

As repeatedly noted earlier [20; 39], there are many factors influencing job satisfaction of teachers. This study also

confirmed the relationship between job satisfaction and school administration support, experience exchange activities among colleagues, and additional functions assigned to teachers in a pandemic. Despite the fact that each of the identified components of job satisfaction has its own specific predictors, their relationship with coping strategies is universal for all components. This may indicate that the formation of adaptive coping behavior among teachers is an important predictor of job satisfaction, and the identified strategies can be effective for representatives of the teaching profession. Based on the data obtained, recommendations can be formulated for the effective overcoming of psychological stress.

It should also be noted that the regression models showed other relationships with the constructs under study. Thus, for the first studied component "satisfaction with the support of school", there are two positive relationships with the factors "organizational support of school administration" and "events for the exchange of experience among colleagues" and a negative relationship with the factor "informational support of school administration". The second component "satisfaction with cooperation with colleagues" is positively associated with the factors "consultation of parents on lesson material" and "informational support of school administration". The third component "satisfaction with communication with parents" is related to the factor "consultation of parents on the lesson material". The fourth component "satisfaction with communication with students" has a positive relationship with such practices

as "preparation of special instructions for doing homework / mastering the material" and "conducting activities not related to the educational program." In addition to the coping strategies that teachers can use in stressful situations such as the pandemic, contextual variables, such as support of school and the ability to adopt new practices, also play a role in predicting job satisfaction.

When studying the relationship between coping behavior and job satisfaction among teachers, the structure of the latter in the process of distance learning was considered by us through the following components: school administration support, cooperation with colleagues, communication with parents and communication with students. It has been established that adaptive coping behavior is represented by the following strategies: positive reappraisal, search for social support, and distraction to a pleasant activity. The conducted regression analysis showed that the use of coping strategies "positive reappraisal" and "distraction to a pleasant activity" is associated with each of the four components of job satisfaction in the process of distance teaching: school support ( $R^2=0.493$ ), cooperation with colleagues ( $R^2=0.322$ ), communication with parents ( $R^2=0.352$ ) and communication with students ( $R^2=0.275$ ). Thus, the study confirmed the theoretically based assumption that the use of adaptive coping strategies relates to job satisfaction of teachers. The results obtained can become the basis for the development of recommendations for improving the effectiveness of the professional activities of teachers in the context of distance teaching.

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# Emotional and Personal Determinants of High School Students' Professional Identity

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The determinants' (prerequisites') analysis of high school students' professional identity (PI) allows us to predict the degree of its formation and dependence on them, as well as to outline ways to overcome the crisis of choosing a profession. Total number of participants N=82. The research methods are the following: SACS; Method for Studying PI Statuses (A.A. Azbel); Personal Anxiety Test by C.D. Spielberger (adapted by A.S. Kuznetsova); BPAQ (A. Buss, M. Perry); Method for Diagnosing Teaching Motivation and Emotional Attitude to Learning (A.M. Prikhodzhan). The motivational, emotional and personal determinants that affect the schoolchildren's PI development are revealed. It is shown that in the conditions of professional self-determination, most schoolchildren have the status of PI "moratorium", and the need to make a decision about choosing a profession causes emotional tension in them. A high level of personal anxiety negatively affects the PI formation and provokes manifestations of aggressiveness, and constructive coping behavior is positive, contributing to a way out of the crisis. Also the PI determinants are profilization, attitude to study and cognitive motivation. The results make it possible to purposefully organize psychological and pedagogical support for students in choosing a profession.

**Keywords:** cognitive motivation, attitude to learning, personal anxiety, learning profile, professional identity, school performance.

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Представлены материалы исследования, целью которого было выявить детерминанты (предпосылки) профессиональной идентичности (далее — ПИ) старшеклассников, что позволит спрогнозировать степень ее сформированности и зависимость от них, а также наметить пути преодоления кризиса выбора профессии. В исследовании приняли участие 82 человека. Методики: SACS; методика изучения статусов ПИ (А.А. Азбель); ВРАК (А. Buss, M. Perry); тест личностной тревожности Ч.Д. Спилбергера; методика диагностики мотивации учения и эмоционального отношения к учению (А.М. Прихожан). Выявлены мотивационные и эмоционально-

личностные детерминанты, обуславливающие формирование ПИ школьников. Отмечено, что в условиях профессионального самоопределения большинство школьников имеют статус ПИ «мораторий», а необходимость принятия решения о выборе профессии вызывает у них эмоциональную напряженность. Установлено, что высокий уровень личностной тревожности негативно влияет на формирование ПИ и провоцирует проявления агрессивности, а конструктивное копинг-поведение оказывает положительное влияние и способствует выходу из кризиса. Также выявлено, что детерминантами ПИ являются: профилизация, отношение к учебе и познавательная мотивация. Делается вывод о том, что полученные результаты позволяют целенаправленно организовать психолого-педагогическую поддержку обучающимся в выборе профессии.

**Ключевые слова:** познавательная мотивация, отношение к обучению, личностная тревожность, профиль обучения, профессиональная идентичность, школьная успеваемость.

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## Introduction

According to the results of Russian and foreign studies, the solution of the task of professional self-determination in the transition period from childhood to adulthood is the basis for the formation of future personal self-efficacy and well-being [4; 7; 11; 21; 23]. Depending on

the experience of communication (successful or unsuccessful), students in the process of learning in profile classes can be formed different strategies for solving problems [8].

E.A. Klimov believes that professional self-determination is “an active search for development opportunities, forming oneself as a full-fledged participant community of “figures” of something useful.” However, as the scientist notes, the process of professional self-determination does not end with the choice of profession, but stimulates the development of professional identity [9]. Developing this thesis, L.B. Schneider points

out: “professional identity is not only the awareness of one’s identity with the professional community, but also its assessment, the psychological significance of membership in it, shared professional feelings, a kind of mentality, a sense of one’s professional competence, independence and self-efficacy, i.e. the experience of one’s professional integrity and certainty” [5; 18].

Yu.P. Povarenkov thinks that professional identity contains “a criterion of professional development, which indicates the qualitative and quantitative features of a person’s acceptance of himself as a professional; a criterion of specific professional activity as a way of self-realization and satisfaction of needs; and a criterion of a system of value norms that this professional community have “ [15].

E.A. Klimov emphasizes that “the formation of identity in a modern individual is an almost unconscious process, since most labor actions are carried out through the use of

various technical means. This circumstance has a negative impact on the formation of an individual's idea of the professional process, because without a clear understanding of their role in this process, it is impossible to achieve professional mastery" [10; 31]. He explores the structure of professional self-consciousness, which includes awareness of belonging to a professional community and understanding the degree of compliance with the chosen profession, that allows a person to highlight his (or her) advantages and disadvantages, find ways to improve himself, optimize his work style, see prospects and make further plans.

Russian scientists identify the features of professional identity and its structural components, determine its connection with personal identity [16; 17; 19]. Scientists believe that there is a semantic connection between the elements of professional identity, and each of them is a psychological "branch" of the general category of professional identity [2; 11].

Summarizing the points of view of Russian psychologists on the nature and content of professional identity, we note that it is based on a complex personal mechanism that consists of a set of professional constructs: professional self-determination; professional fitness; professionally important qualities; professional readiness; professional development; elaboration of a professional life plan [7; 12; 13; 14].

Last years in foreign scientific literature, researchers have also focused on the problem of professional self-determination, its stages and specifics, its determinants. Thus, B. Lee and E.J. Portfeli study the family aspect of vocational guidance of schoolchildren [26]. In the researches of A. Hovee et al. (A. Hovee, M. Kuijpers, F. Meijers, A. Bubic, K. Ivanisevic, etc.), the degree of responsibility of teachers for the development of students' future careers, the influence of emotional stability and competence in career choice by adolescents are discussed [21; 22; 23; 24]. The

factors and conditions of the development and functioning of personal and professional identity, the role of self-identity on the planning of one's behaviour are analyzed [20; 29; 31]. It is worth noting the researches of foreign colleagues, which study individual factors that reveal differences in schoolchildren such as intelligence and its relationship with subjects, cognitive abilities, problem solving, academic success, socio-demographic characteristics (gender, age, socio-economic status, etc.) [27; 28]. F. Rodrigues and M. Mogarro, in a systematic review of professional identity studies, revealed that identity is malleable, is formed through socio-cultural and practical experience and depends on professional experience, personal characteristics and external factors [30].

According to the research results of L.A. Golovey et al., "professional self-determination is a complex psychological education, including the status of professional identity, cognitive interests, professional orientation, dominant motivation, constructing life prospects and choosing a professional path. To make this choice, it is necessary to rely on external and internal resources. The internal resources are age, personal maturity, responsibility, autonomy, resilience, emotional attitude to learning and others. The external resources are the features of the social situation such as the conditions of development, the socio-economic status of the family, the profile and level of education of parents, etc." [4, p. 72].

As practice shows, when choosing a learning profile, teenagers are based on such preferences as liked the teacher; friends chose this profile; there is no desired profile in this school, and I did not want to switch to another school ... And most importantly, often the learning profile is chosen not by the children themselves, but by their parents. Therefore, students should be prepared in advance for a *conscious, independent choice of a learning profile*. Such training is most relevant in grades 7—9 [3; 4; 5; 8].

Hence, the problem of the need for psychological support that include providing targeted assistance with consideration of abilities, inclinations and other personal formations arises.

In our study, the formed professional identity of students can be judged by the presence of their profile goals and plans, a system of self-knowledge, professional values; by willingness to make a professional choice, building your profile development; understanding the goal and confidence in the correctness of making a decision about your professional future. Harmonization of the ratio of *internal reserves* (mainly naturally conditioned and individually stable personal) and *external* (socio-cultural and socio-economic, etc.) *resources* (I.M. Zentsova, M.K. Kabardov, A.K. Bedanokova, K.N. Vasilevskaya) and accounting for school achievements in subjects' cycles (humanities, physics and mathematics or natural sciences) should increase both the reliability of psychodiagnostic data and the accuracy of self-determination (T.V. Malyutina).

According to the M.K. Kabardov concept "teacher — method — student", "the well-being and success of learning (at school or university) are provided by a favorable correspondence of the learning environment (the teachers' requirements and the subject area being studied) and the individual students' characteristics and the contribution of regulatory experience (experience of conscious self-regulation) in the success of professional self-determination is determined" [8, p. 81]. In this connection, one of the most important tasks is to study the ratio of differential psychological indicators of the cognitive or communicative and personal development of adolescents aged 13-15 years as an objective psychological basis for assessing individual profiling strategies [8].

It is worth noting that the difficulties of adolescent choice are quite stressful, affect the mental health problems of schoolchildren and are associated with the need to preserve their mental health.

In our opinion, the identification of psychological mechanisms and conditions for the development of coping behaviour of high school students will let us purposefully organizing psychological and pedagogical support in the process of preparing for the upcoming education, to preserve their psychological well-being. In turn, the effectiveness of a person's coping with vital tasks ensure self-satisfaction, achieved results, harmonious personal development, which allows him or her to successfully master the world of professions.

### Research procedure

*The purpose of the study* is to identify motivational, emotional and volitional personality features of 9th grade students that affect the status of professional identity.

It was assumed that the emotional and personal determinants of the high school students' professional identity as internal (motivation of learning, emotional states and personal properties such as aggression and anxiety, and emotional attitude to learning) and external resources of the individual (academic success and learning profilization), as well as their combination, affect the level of formation of professional identity (its status) and the preference for a strategy for overcoming stressful situations associated with the need to choose a profession.

*Sample.* 82 schoolchildren of the 9th grades studied in the Regional State Budgetary Educational Institution "Lyceum No. 9" of the city of Belgorod took part in the study (47 girls and 35 boys). It should be noted that the lyceum uses modern pedagogical technologies and innovative educational programs in its educational process. The Lyceum is a basic school of the Research University "Higher School of Economics" in the University Educational District project.

*Methods.* 1. Methods of statistical analysis are: the data obtained were processed using descriptive statistics, Pearson correlation analysis and multiple regression one,



which we used to analyze the relationship and degree of influence of the high school students' emotional and personal characteristics on their professional identity status.

2. The Bass-Perry aggression method is the Russian language version of BPAQ (A. Buss, M. Perry); C.D. Spielberger's personal anxiety test (adapted by A.S. Kuznetsova); methods for diagnosing the leaning motivation and emotional attitude to the learning of A.M. Prikhozhan (modified by A.D. Andreeva); SACS method (modified by N.E. Vodopyanova, E.S. Starchenkova); method for studying professional identity statuses (A.A. Azbel); analysis of academic success; observation and conversation.

## Findings

### Professional identity

At the first stage of the study, we analyzed the personal determinants of the professional identity formation (Table 1).

According to the method of studying the professional identity statuses, the highest average score has the status of "moratorium" (13.02). The high level of this status indi-

cates that for the majority of ninth graders, the problem of choosing a profile direction of study is in the process of solving it, they are in a crisis of choice, which is characterized by the search for information about different specialties and ways to obtain them, but the most suitable option of professional choice has not yet been determined. The second most pronounced is the status of the formed professional identity (8.1), which corresponds to the average level of severity. The uncertain status and the status of the imposed professional identity have a weak level of expression that corresponds to age norms [1].

### Emotional and volitional characteristics of schoolchildren

The next stage was the study of the attitude to learning in specialized classes (a method for diagnosing the learning motivation and emotional attitude to learning). This analysis allows us to conclude how pronounced are the indicators of motivation for learning among high school students and their readiness for further professional knowledge (Table 2).

Table 1  
**The severity of indicators of professional identity statuses in the sample as a whole (average score)**

	<b>Indefinite</b>	<b>Imposed</b>	<b>Moratorium</b>	<b>Formed</b>
Sample	2.65 (SD=2.60)	1.48 (SD=2.92)	13.02 (SD=5.17)	8.1 (SD=5.89)
ANI	2.7	1.02	9.12	1283

Note. The sample is its average values; ANI is the average normative indicators (according to A.A. Azbel); the values of asymmetry in the range from 0.32 to 0.44 and the kurtosis from -0.74 to -0.56 show the normal distribution of data. For conditional correspondence of the distribution to the normal, it is allowed to find indicators of asymmetry and kurtosis in the range from -1 to 1; SD is the standard deviation.

Table 2  
**Indicators of teaching motivation among high school students (average score)**

	<b>Cognitive activity</b>	<b>Achievement motivation</b>	<b>Anxiety</b>	<b>Anger</b>	<b>Total (calculated)</b>
Sample	29 (SD=4.12)	29 (SD=4.08)	22 (SD=4.25)	16 (SD=4.41)	20.4 (SD=11.98)
ANI	18—28	18—28	16—22	12—18	13—28

Note. The sample is its average values; ANI is the average normative indicators (according to A.M. Prikhozhan, A.D. Andreeva). The values of asymmetry ranging from -0.23 to 0.18 and kurtosis from -0.51 to -0.03 show the normal distribution of data; SD is the standard deviation.

Based on the data in the table, it is possible to talk about increased cognitive activity and motivation of students' achievements (29 points). As for the emotional state, the average values of the indicators of the "anger" scale (16 p.) and the increased values of the "anxiety" scale (22 p.) are noted. Thus, in general, a positive attitude to learning is noted in the sample with an increased sensitivity to assessment. Quantitative indicators of cognitive motivation and attitudes to learning in the sample as a whole indicate that 48% of the subjects are characterized by reduced cognitive motivation. This may specify that these individuals tend to study subjects with less zeal, which, in their opinion, will not help or will not be needed for their further professional life. But unlike 28%, who are also characterized by reduced motivation, they do not experience emotionally negative feelings from subjects assessed as meaningless. Summarizing the above, it can be argued that schoolchildren with reduced motivation to study excluded some subjects from their interests or the manner of their teaching by teachers.

It should also be noted the heterogeneity of the sample:

— 22% of adolescents demonstrate productive motivation, but at the same time they are not inclined to a personal positive assessment of learning, but do it for the sake of social norms. In addition, they may also experience a decrease in motivation regarding particular aspects of learning;

— 3% of students show a tendency to a sharply negative attitude to study. They believe that schooling will not bring them the knowledge they need, or they believe that the available knowledge is enough for later life. It is worth considering that the school education is compulsory, and its obligation may also cause a negative attitude.

At the next stage of the research, we studied such characteristics of the emotional sphere of high school students as the level of anxiety and aggression.

C.D. Spielberger's test data demonstrate a high level of personal anxiety (45 average points). A high level of personal anxiety is detected in 52% of ninth graders. Such data shows that respondents experience frequent excitement about future events, while the excitement is so strong that it causes the activity to stop. 45% of respondents are characterized by an average level of anxiety. This level is the most adaptive. Persons who show such a characteristic receive from excitement an additional resource that helps them in predicting and solving any life tasks. 2% of the subjects have a low level of anxiety, which indicates that they underestimate the objective importance of the situation. Many events in life for such persons are perceived as insignificant.

For a more in-depth understanding of the emotional sphere of the students' personality, in addition to anxiety, we have diagnosed aggressive behaviour of schoolchildren (see Table 3).

Table 3

**Severity of indicators of aggressive behavior in the sample as a whole (average score)**

Physical Aggression		Anger		Hostility		Integral Scale	
A (SD=9.06)	N	A (SD=5.48)	N	A (SD=9.98)	N	A (SD=18.10)	N
18.4	21.5	9	22.6	23.3	22.8	50.7	67

Note. A is the average values of the sample; N is the normative indicators (according to S.N. Enikolopov); The values of asymmetry ranging from 0.12 to 0.13 and kurtosis from -0.93 to -0.70 show the normal distribution of data; SD is the standard deviation.

Based on the analysis of the data presented in Table 3, it can be seen that the indicator of the instrumental component of aggression "physical aggression" and the indicator of the cognitive component "hostility" in this sample have an average level of severity (18.4 and 23.3 respectively). Thus, teenagers if and show aggressive reactions of threat or intent to harm others and reactions that develop negative feelings and assessments of people and events, then only in exceptional situations. In general, they are able to objectively distinguish between fair and unfair situations.

The affective component "anger", that includes physiological arousal and preparation for aggression, has a low level of severity (9 points), which indicates that adolescents are not inclined to experience anger, or they are inclined to suppress it.

Making a conclusion about the manifestations of aggression of students, we can say about its low level in general (50.7 p.).

For a more in-depth study of students' attitudes to various kinds of exciting or stressful life events and their overcoming, we have analyzed the respondents' coping strategies (Fig. 1).

The figure shows that the majority of stress coping indicators in the sample of high school students do not exceed the average level of severity. The exception is the high level of the prosocial strategy "seeking social support" (25 points) and the passive strategy "avoidance" (19 p.). These individuals demonstrate a tendency to seek help and search for resources to overcome stressful situations, however, in difficult life situations they prefer to avoid problems.

As for the analysis of the index of constructiveness of high school students' behaviour of in whole as a ratio of constructive coping and non-constructive, its indicator is 1.3 points, which shows a high level of constructiveness of behaviour in stressful situations. A constructive strategy is an ac-

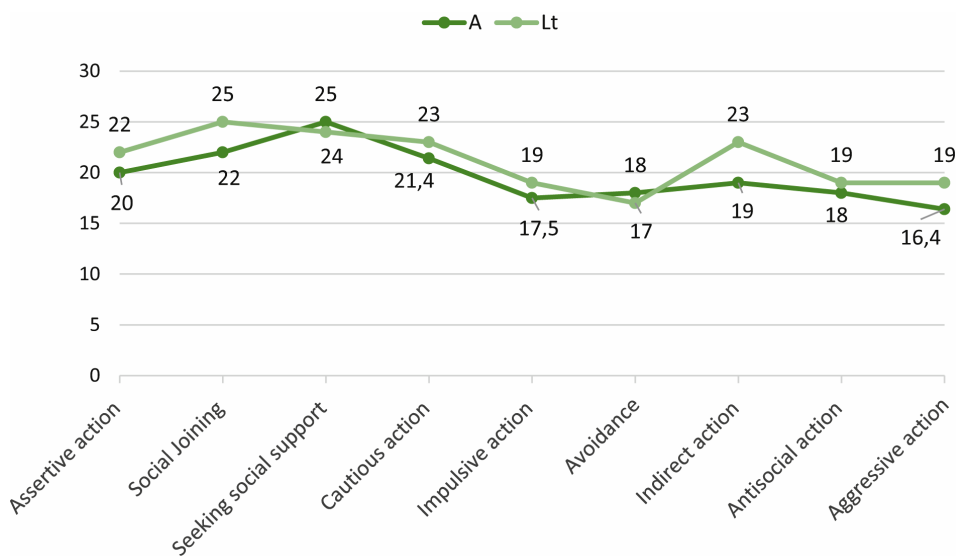


Fig. 1. The severity of indicators of strategies for overcoming stressful situations of high school students.  
 Note. A is the average values of the sample; Lt is the top limits of the norm; The values of asymmetry in the range from — 0.65 to 0.94 and kurtosis from -0.62 to -0.63 show the normal distribution of data

tive “healthy” overcoming, which together with the positive use of social resources (contacts) increases a person’s stress tolerance.

**Professional identity and personal features**

For the purpose of in-depth study of the results obtained by indicators of emotional and personal determinants and the professional identity status, a multiple regression analysis is carried out, the results of which are presented in Table 4.

In this case, the independent variables are indicators of learning motivation, aggressiveness, personal anxiety and strategies for overcoming stressful situations, and the dependent variables are the professional identity statuses. The conducted

multiple regression analysis has found four regression models, including only those regression coefficients and indicators of emotional and personal features that revealed statistical significance (see Table 4).

The first regression model “Moratorium” included the following significant regression coefficients: “Personal anxiety” ( $\beta=0.463$  at  $p\leq 0.05$ ) and “Structural behaviour in stressful situations” ( $\beta=0.519$  at  $p\leq 0.05$ ). These indicators suggest that increased anxiety, a sense of responsibility for activities and the active overcoming of stressful situations, the use of all available personal and environmental resources to find possible ways to effectively solve the problem have a positive impact on the “crisis of choice” of the profession, in which ninth graders try to explore the maximum number of alterna-

Table 4

**Analysis of the influence of emotional and personal features on the status of high school students’ professional identity**

Model	Regression coefficient R	Determination coefficient R <sup>2</sup>	Standardized coefficients. $\beta$	t	Darbin Watson d	Serial correlation of residuals
<b>1. Moratorium (crisis of choice)</b>						
Personal anxiety	0.531	0.261	0.463*	1.036	1.844	0.053
Coping behaviour constructiveness index	0.31	0.109	0.519*	1.689	1.900	0.046
<b>2. Formed professional identity</b>						
Assertive action	0.416	0.208	0.989**	2.512	1.868	0.045
Cognitive activity	0.397	0.154	0.798**	2.125	1.870	0.063
Personal anxiety	0.249	0.061	-0.487*	-1.484	1.943	0.022
<b>3. Imposed professional identity</b>						
Seeking social support	0.330	0.107	0.511*	-1.667	1.877	0.058
Avoidance	0.477	0.221	-0.957**	-2.172	1.881	0.033
<b>4. Uncertain professional identity</b>						
Physical Aggression	0.316	0.102	0.967**	2.478	1.942	0.024
Attitude to learning	0.233	0.053	-0.385*	-1.237	1.956	0.006
Coping behaviour constructiveness index	0.239	0.057	-0.419*	-1.343	1.930	0.033

Note. The regression analysis method is standard. If  $1.5 < d < 2.5$ , then there is no autocorrelation of the residuals and the obtained dependencies in the regression model are adequate. The level of significance of the indicators marked \* —  $p\leq 0.05$ ; \*\* —  $p\leq 0.01$ .

tive options for further professional development and make a meaningful decision about their future.

The second regression model "Formed professional identity" is represented by statistically significant regression  $\beta$ -coefficients for the following indicators: "Assertive actions" ( $r=0.416$ ;  $\beta=0.989$  at  $p\leq 0.01$ ), "Cognitive activity" ( $r=0.397$ ;  $\beta=0.798$  at  $p\leq 0.01$ ) and "Personal anxiety" ( $r=-0.249$ ;  $\beta=-0.497$  at  $p\leq 0.05$ ). This connection shows that with an increase in the ability to independently regulate one's own behaviour and be responsible for it, and a positive emotional attitude to learning, a sense of anxiety decreased, a sense of confidence in the success of future activities grows, which in turn affects the level of readiness to make an informed choice for further professional development.

In the third regression model "Imposed professional identity", it turned out that the indicator "Seeking social support" ( $\beta=0.511$  at  $p\leq 0.05$ ) has statistically significant positive regression coefficients, and the indicator "Avoidance" ( $\beta=-0.957$  at  $p\leq 0.01$ ) has negative regression coefficients, which shows the fact that these indicators have an impact on reducing the tendency of self-choice of one's professional path in favor of the opinions of parents, friends and other authoritative persons.

The fourth regression model "Status of uncertain identity" included statistically significant regression  $\beta$ -coefficients for the following indicators: "Physical aggression" ( $r=0.316$ ;  $\beta=0.967$ , at  $p\leq 0.01$ ), "Attitude to learning" ( $r=-0.233$ ;  $\beta=-0.385$ , at  $p\leq 0.05$ ) and coping behaviour constructiveness index ( $r=-0.239$ ;  $\beta=-0.419$ , at  $p\leq 0.05$ ) That is, with an increase in the behaviour of reactions implying direct physical use of aggression, the severity of an uncertain professional identity will grow. This distribution may be caused by the fact that a person who often uses force reasons rejection in others, and, consequently, loses such a

resource as the help and support of others (family, friends, significant others).

Further, the analysis of academic performance is carried out and the interrelation of schoolchildren's emotional and personal characteristics with the results of educational activities in the basic subjects of three main directions (physics and mathematics; humanities; natural science profile) is revealed using the parametric Pearson correlation coefficient (see Table 5).

From the data of the correlation analysis it follows that the indicator of academic performance in the subjects of the natural science cycle (biology, chemistry) has positive links with the coping strategy "social joining" and negative one with cognitive activity and physical aggression. When a teenager is looking for a solution to research problems, but the appropriate option has not yet been determined, then turning to the social context of overcoming stressful situations gives him the opportunity to prevent the occurrence of physical aggression; namely, timely expressed support, discussion of the problem with relatives or competent people, understanding, empathy help to mobilize internal resources and positively affect the emotional state of a person.

Academic performance in the physical and mathematical profile correlates positively with the strategy of "cautious actions" in overcoming stressful situations and negatively with anxiety, anger and the "moratorium of professional choice" (crisis of choice). It is assumed that teenagers with an analytical mindset, finding themselves in a stressful situation, refuse to actively change this situation or their emotional state, show caution and doubts about their readiness to consistently implement their professional choice.

Academic performance in the subjects of the humanities cycle has ambiguous connections. Academic performance in social studies positively correlates with an uncertain professional identity and assertiveness

Table 5

**The interrelation of academic performance indicators, learning motivation, professional identity, overcoming stressful situations and aggressiveness of high school students (n=82)**

	Profile						
	Physics and mathematics		Humanities			Natural science	
	Mathematics	Physics	English	Literature	Social Studies	Chemistry	Biology
<b>Learning motivation (A.M. Prikhozhan)</b>							
Cognitive activity						-0.389	-0.399
Anxiety		-0.410					
<b>Professional identity (A.A. Azbel)</b>							
Indefinite					0.457		
Moratorium		-0.425			-0.527		
<b>Strategies for coping with stressful situations (SACS) S. Hobfoll</b>							
Assertive actions					0.483		
Social joining							0.394
Cautious actions	0.401						
Aggressive actions			0.385				
<b>A.Bass &amp; M.Perry's aggressiveness questionnaire (BPAQ)</b>							
Physical aggression				-0.449			-0.398
Anger		-0.406					

Note. Results are shown at a significance level of  $p < 0.05$ .

as a way to overcome stressful situations, which implies a set of “soft skills” that help in personal and work life. In a broad sense, it is the ability to feel confident regardless of the opinions of others and at the same time be in harmony with other people. Assertiveness has a negative connection with the moratorium (crisis of choice) of professional identity, which indicates the schoolchildren’s uncertainty in choosing a profession. Good academic performance in literature negatively correlates with aggressiveness, and academic performance in English has a positive correlation with the strategy of “aggressive actions”, which implies causing discomfort to others and violating generally accepted social norms, that may be associated with the formation of values and norms of behaviour in adolescents.

**Discussion**

On the base of the quantitative and qualitative analysis of the data, we have identified a number of emotional and personal characteristics that affect the level of high school students’ professional identity.

In our view, professional identity means identifying oneself with a certain professional group of people, accepting its goals and values, and realizing oneself as a member of this group.

According to A.A. Azbel, “it is at high school age, at the stage of “fitting professional roles” that the prerequisites for the formation of a holistic professional identity begin to be laid through the formation of professional intentions, self-awareness, through the construction of images of professions, i.e. the development of PI begins

long before a person starts working. Consequently, it is possible to talk about some states during the formation of PI, i.e. to talk about the status of PI in high school age" [1, p. 7]. In this connection, to analyze the motivational, emotional and personal determinants of the professional identity of schoolchildren, it was 9th grade students who took part in our study, i.e. schoolchildren who are facing the choice of a profile class. This age group is characterized by experiencing a crisis of choosing a future profession. In this state, students are concerned about their professional development. They are looking for, studying various specialties in order to come to a specific choice of profession. Such a situation plunges the respondent into a stressful situation in which, using constructive coping methods, he or she can come to a formed professional identity. It should be noted that a high level of personal anxiety can hinder such a development of events, as well as reduced educational motivation. This situation, as a rule, leads to the need for personal development, i.e. the development of independent decision-making, which leads to a certain comfortable state.

When studying the schoolchildren's professional identity, it is found that students are in a crisis state of choosing a profession, looking for alternative options and in-depth considering a certain cluster of professions. We can also say that there are people who have already made an informed choice regarding their further professional development. These data are consistent with the data of M.A. Egorova, I.V. Yemelyanova, N.V. Golovanova in the study of psychological resources and risks of the emotional and personal sphere of students in grades 10-11 during the period of professional self-determination, according to which, students with low motivation for learning demonstrate a moratorium (crisis of choice) and an uncertain professional identity.

The analysis of these professional identity statuses confirms the previously obtained results of A.A. Azbel's study that the highest average score for 9th grade students has the status of a PI moratorium, which indicates that most of them are in a crisis of their existential choice. In our study, we have found the determinants of the moratorium, which is characterized by increased personal anxiety and at the same time the search for constructive strategies to overcome the crisis of choosing a profession. At the same time, the study shows that the moratorium proceeds differently in specialized classes. So, among students of the physics and mathematics' and the humanities' profile, those students who preferred physics and social studies have a negative relationship with the moratorium, that may indicate in favor of the right choice of the profile, while other professional identity statuses have no statistical significance.

The profiling of learning is an important resource of the individual in his or her self-determination. Pre-profile and profile learning of students is implemented in schools. Being a means for differentiation and individualization of education, profile learning includes one or more areas within which the profile is selected; let us form and implement an individual learning plan focused on a specific person. The profiling of school education is a system of special preparation of the student for a balanced and conscious choice of direction that will allow him or her to get a profession in the future and realize himself in life and work.

Back in 2012—2014, a model of the project "Early profiling in secondary schools" was developed for the study of the educational process in grades 1—11, having helped to organize classes and activities for early profiling of students. The developers of the model suggested that the goal of the project was to create conditions for successful career guidance of adoles-

cents, rapid and successful adaptation to the labor market, as well as the formation of abilities to correlate their individual psychological characteristics and capabilities with the requirements of the chosen profession. In the developers' opinion, this is possible provided that regular profiling classes are organized, an educational space is created on the activity-based approach, and predictable results can be achieved, namely a balanced, independent choice of professional activity, psychological readiness for professional self-determination [7, p. 59]. Indicative are the research results of the features of the emotional and personal sphere of the profile 7th grades' students, that revealed a number of patterns showing the differences between the profile classes of natural science, humanities or mathematical education profile. The most attention of the researchers was focused on differences in abilities (for example, the level of concentration, visual and motor coordination of students, existential fullness, personal qualities, etc.). In this research, the primary emphasis was placed on identifying the emotional and personal determinants of the high school students' professional identity as *internal* (motivation of learning, emotional states and personal properties such as aggression and anxiety, and emotional attitude to learning) and *external* personal resources (academic success and profilization of learning). The results of the study revealed a different degree of severity of professional identity statuses characteristic of ninth graders. The selected PR models (moratorium, formed professional identity, imposed or indefinite professional identity status) have found combinations of internal and external personality resources that detect the significance of certain emotional and personal determinants for each professional identity status, that, as we believe, has predictive power and can determine the degree of professional identity formation.

In general, specialized learning, of course, on the one hand, makes it possible to focus on the right subjects for passing the exam, and if a teenager has decided on a choice of profession, it becomes easier for him or her to study, his motivation for learning increases, since he or she understands what academic subjects he or she needs in his / her future profession. But, on the other hand, if professional preferences change in the learning process, then early profiling prevents the possibility of obtaining knowledge corresponding to a new professional choice. When providing psychological assistance to a teenager, it is important to give an opportunity to understand his or her potential (opportunities and limitations) for making an independent decision and to be responsible for it.

Along with that, for tenth graders, academic performance in educational subjects is the main guideline when choosing a profile at school, although when choosing a profile, teenagers and their parents assume a certain professional sphere, but in fact, choosing a profile is not a choice of profession, but the definition of a strategy for further making an adequate decision [6].

As a profession (in order to be successful in it) imposes certain requirements on the personal qualities of a person, so successful learning in different specialized classes of a school presupposes the presence of appropriate qualities of a student including their acquisition and development. Our research has revealed some natural connection between professional identity, success in the subjects of the relevant profile at school and the qualities of the emotional and volitional sphere of high school students. There are different trends in the interrelation between the progress of mastering knowledge in the academic subjects' cycles (natural science (ESC), humanities (HC), and physics and mathematics (F-MC)) and strategies for overcoming stressful situations. It is that higher ESC scores,



tend to the strategy of "social joining"; HC tend to strategies of "aggressive actions"; according to the F-MC, there is a tendency to the strategy of "cautious actions". It can be assumed that schoolchildren in the first case prefer to seek support on the side (the position of the teacher may be important to them), in the second one they strive to achieve their own pressure, and in the third case they make timid attempts to independently find a solution to the problem, relying on the internal resources of the individual. The use of external and internal resources of the individual and their combination determines the choice of strategies for overcoming stressful situations caused by the need to choose a profession, that confirms the proposed hypothesis.

### **Conclusion**

In the study, an attempt is made to supplement the data available in the literature, the generalization of which allows us to identify the psychological determinants of the professional identity formation and improve career guidance work with high school students.

The results of the study have showed that the dominant status of the high school students' professional identity is a moratorium featuring a crisis of profession choice. Each status of PI is characterized by a combination of external and internal resources of the individual. Among the internal resources in the sample, a positive attitude to learning with increased sensitivity to assessment is noted. It has been established that an increased level of personal anxiety negatively affects the formation of professional identity and provokes manifestations of aggressiveness. In turn, the direct expression of aggression also leads to a number of difficulties in the professional identity formation. In addition, the ideas about the professional future are influenced by the attitude to learning and cognitive motivation. A high level of motivation to study contributes to the forma-

tion of professional identity. Conversely, a decrease in motivation blocks the desire to obtain information about the profession, thereby preventing a conscious choice of their own professional future.

The key determinants of the formed professional identity of modern high school students are the following: the presence of external positive emotional conditions for the PI formation; a positive attitude to learning, cognitive activity; the ability to feel confident and at the same time be in harmony with other people.

Among the external resources of the individual, academic success becomes one of the most important steps in the formation of pre-professional learning and orientation in the system of professional environments. The inclinations and abilities found in adolescents in various fields of knowledge (HC, ESC, F-MC) provide some support from both teachers and parents. This allows you to remove emotional tension during self-determination. Thus, the profile of professional preparing of future specialists with the correct organizing of the educational process should help to increase motivation to master the academic subjects necessary in the future profession.

Constructive coping behaviour plays a positive role in choosing a profession and contributes to the final formation of professional identity. Strategies for overcoming stressful situations related to the choice of profession help or hinder the professional identity formation. In our opinion, the identification of psychological mechanisms and conditions for the development of coping behaviour in high school students will help to purposefully and effectively organize psychological and pedagogical support in the process of preparing for vocational education.

The most important factors in maintaining physical and mental health are taking into account the individual psychological characteristics of students, the use of ad-

equate educational technologies, encouraging independent decision-making, creating conditions for normal self-determination and profile comfort. The use of internal and external personal resources, including emotional and personal determinants of the high school students' professional identity, reduces the risks of a crisis in the choice of a profession for high school students, optimizes the trajectory of personal and professional path and promotes the schoolchildren's health.

### Limitations and prospects of the study

The study limitations should include the limited sample of the study (82 9th grade

students). The objectives of future research are to study the emotional, personal, and cognitive determinants of professional identity in a larger sample of 9th-11th grade students studying in different educational environments, to investigate the general and special abilities of students that affect their personality and determine success in choosing a profession, to identify gender differences; to use methods that reduce the negative manifestations of the emotional, volitional sphere and personal characteristics of students for effective psychological and pedagogical support of schoolchildren in the process of preparing for the upcoming education and maintaining mental health.

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# Preschoolers' Perception of Monster Toys (on the Example of Huggy Wuggy)

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The article focuses on the problem of preschoolers' perception of monster toys and their role in contemporary children's subculture. It also presents the results of an empirical study of preschoolers' perception of the Huggy Wuggy toy. The research was conducted by the Center for Interdisciplinary Research on Contemporary Childhood of Moscow State University of Psychology and Education in November 2022. The sample included 298 children aged from 4 to 6 years. The following research methods were used: conversation with children, non-participant observation of children's free play in kindergarten. The children were also asked to draw a picture of a human being and of Huggy Wuggy. The results obtained testify that the majority of preschoolers regard Huggy Wuggy as an "object of prestige" — they bring it to kindergarten and playground, demonstrating it to their friends, while they rarely interact with the toy in the process of play (including episodes of role play). While being aware of the videogame "Poppy Playtime" most children do not use its plot in the play process. Generally, play with Huggy Wuggy does not differ much from preschoolers' play with other toys. The revealed negative emotional charge, connected with the image of Huggy Wuggy, in most cases relate to videos on Youtube that children have watched, and where negative information both about the videogame and its main character is presented in the most affective way.

**Keywords:** monster toys, children's subculture, videogame, Huggy Wuggy, play activity, preschool age.

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## Особенности восприятия детьми дошкольного возраста игрушек-монстров (на примере Хагги Вагги)

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В статье рассматривается проблема восприятия дошкольниками игрушек-монстров и обсуждается их роль в современной детской субкультуре. Представлены результаты эмпирического исследования особенностей восприятия детьми игрушки-монстра Хагги Вагги, проведенного на базе Центра междисциплинарных исследований современного детства МГППУ в ноябре 2022 г. при участии 298 детей 4—6 лет. В исследовании были использованы следующие методы: беседа с детьми, невключенное наблюдение за свободной игрой детей в условиях детского сада. Также детям было предложено сделать рисунок человека и рисунок Хагги Вагги. Полученные результаты позволяют говорить о том, что для большинства современных дошкольников игрушка Хагги Вагги является, прежде всего, «статусным» предметом (дети приносят ее в детский сад и на площадку, показывают друзьям), при этом непосредственно в игровой деятельности (в т.ч. в сюжетно-ролевых эпизодах) игрушка используется достаточно редко. Зная о видеоигре «Poppy Playtime» и имея представление о ее содержании, дети, как правило, не используют в собственных играх ее сюжет. В целом, игра с Хагги Вагги не отличается от игр с другими мягкими игрушками. Выявленная у детей негативная эмоциональная нагрузка, связанная с образом Хагги Вагги, обусловлена содержанием роликов на YouTube, где максимально аффективно представлена отрицательная информация о содержании игры и об этом персонаже.

**Ключевые слова:** игрушки-монстры, детская субкультура, видеоигра, Хагги Вагги, игровая деятельность, дошкольный возраст.

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## Introduction

In the research of the last few years many authors emphasize the growing popularity of monsters in contemporary media narratives oriented both on adults and children [10; 12; 14]. Monster characters appear in video games («Five Nights at Freddy's Slender: The Eight Pages», «My Singing Monsters»), cartoons («Monsters, Inc.», «Monster High», «Hotel Transylvania: Transformania»), fairy tales («Smudges and Smacks»), etc. Contemporary monsters are presented by various images, and many of them elicit sympathy and evoke a desire to be like them (Hulk, Shrek, Pokemons, Mike Wazowski from Monsters, Inc.). Their differences from humans do not have any negative connotation. On the contrary, they usually have superpowers, which they use for the sake of other people (Teenage Mutant Ninja Turtles, Hulk, Spider-Man). Being a monster has become culturally acceptable and does not hamper monster characters to become superheroes of modern time [4; 16].

It is important to highlight that “scary” characters have always been a part of children’s subculture. For example, Baba Yaga and Koschey the Immortal traditionally appeared in children’s fairy tales. However, as representatives of the “evil”, these characters have never been central, and they have never been regarded as a pattern for copying. On the contrary, they were regarded more as an instrument for shaping an ambivalent image of the world. According to the plot, the main character was usually expected to fight with the “evil” characters, while the main character was courageous, and usually acted as the bearer of “traditional values” [3].

The fact that monster characters appear in children’s subculture and are presented

as positive characters is a concern for parents. Parents are anxious about the possible negative influence of monster characters on their children’s development. Therefore, the problem of children’s perception of monsters and peculiarities of play with Monster toys in the last few years have attracted much attention among psychologists and educators both in Russia and abroad.

Most contemporary authors consider that the main function of a “scary” toy for the child is nowadays connected with the necessity to «flee from the boredom of everyday life», to acquire new impressions and to learn how to cope with the fears [2; 6; 8; 9, 10]. At the same time, a number of authors have stressed the tendency of devaluation of “the scary”, which is often referred to post-modernist culture. According to Elena Smirnova et. al., children who constantly play exclusively with “scary” toys have difficulty in learning how to spot “the evil” and “to live it through”, which leads to certain erosion of ethical and aesthetic ideas. Monsters, who are traditionally regarded as scary creatures, become attractive for children, which might make it difficult for the child to shape the concept of good and evil [7]. However, there is very few empirical data which could support this point of view.

On the whole the problem of children’s interaction with Monster toys remains today very little studied and requires further theoretical and experimental elaboration.

## Research design and sample characteristics

In November 2022 Center for Interdisciplinary Research on Contemporary Childhood of Moscow State University of Psychology and Education conducted an empirical research aimed at studying the pe-

cularities of perception of monster toys by contemporary Russian preschoolers. The research was conducted on the example of Huggy Wuggy — a monster toy, which has gained extreme popularity among Russian children in the past two years.

Originally, Huggy Wuggy is a character of the video game «Poppy Playtime», which is referred to the horror genre. According to the plot, the player visits and abandoned toy factory, meets the Huggy Wuggy toy, who starts to chase the player. At the beginning, the player tries to escape from Huggy Wuggy, but later is challenged by a task to catch Huggy Wuggy. The game is designed for children older than eight years.

Apart from the video game, there are many short videos with Huggy Wuggy on the Internet, which are available among others on YouTube and TikTok. Some of the videos are devoted to the play «Poppy Playtime». Some of them offer recommendations about completing the game, others contain a critique of the game. At the same time many of those videos are based exclusively on the scary scenes from the video game. They also include comments from their authors, which exaggerate the feeling of fear. Another group of videos consists of those which have nothing in common with the original video game. However, they use the image of Huggy Wuggy. Many of those videos include scenes of violence and aggressive behavior.

The research was neither aimed at the analysis of the content of the original video game, nor on the videos created with the image of Huggy Wuggy. At the same time in the framework of the research it was taken into account, how well the child is informed

about the socio-cultural context of the toy, as well as whether he or she knows the plot of the video game, and whether he or she watched the videos with Huggy Wuggy on the Internet. The main goal of the research consisted in revealing the peculiarities of perception of Huggy Wuggy by contemporary preschoolers. For meeting this goal, the following methods were applied:

- conversation with children;
- non-participant observation of children’s free play with Huggy Wuggy;
- picture of Huggy Wuggy;
- picture of human.

Conversation and non-participant observation were organized in three schools in Moscow region. 298 children aged from 4 to 6 took part in the research at different stages. More detailed characteristics of each stage of the research are presented in Table 1.

For conversation with children the research group elaborated «The protocol of conversation», which included 14 questions.

In the process of conversation with the child, the following tasks were solved: detection of the level of acquaintance of the child with the character Huggy Wuggy; the analysis of the child’s attitude to Huggy Wuggy; revelation of the peculiarities of children’s interaction with the Huggy Wuggy monster toy in the process of play activity. The analysis of children’s pictures (including pictures of human beings and pictures of Huggy Wuggy) was conducted with the aim of revealing the child’s emotional charge while interacting with Huggy Wuggy.

The research on the peculiarities of preschooler’s interaction with Huggy Wuggy in the play process was organized in two

Table 1

**Sample characteristics**

Method	Conversation with children	Observation of children’s free play	Picture of Huggy Wuggy and picture of human
Number of participants	61 child 4—6 years	130 children 4—6 years	107 children 4—6 years

stages. The first stage included non-participant observation of children's free play in kindergarten, which children attended (no Huggy Wuggy among the toys offered). At the second stage of the non-participant observation, the Huggy Wuggy toy was added to the toys, which were usually available to children in the kindergarten. The duration of each episode of non-participant observation was 30 minutes.

## Research results

### Conversation

The results of the conversation with children showed: more than half of the children possess their own Huggy Wuggy (44.3%, N=27). Usually, the toy is offered to the child by the adults (parents, grandparents) on the child's request (66.6%, N=18).

According to the data obtained (Fig. 1), the majority of children know about Huggy Wuggy even when they don't have this toy at home (88.5%, N=54). Most children — 37.7% (N=23) learn about the character from their age mates (in kindergarten, at playground, etc.) or from videos on YouTube — 26.2% (N=16). Fewer children see the toy for the first time in a shop — 9.8% (N=6), or when being offered as a present — 3.3% (N=2). In our sample 11.4% of children (N=7) failed to identify where they had learned about Huggy Wuggy, however,

they stressed that everyone "is acquainted with this character".

While answering the questions concerning the perception of the image of Huggy Wuggy, the majority of children (60.6%, N=37) regarded it as an evil character, 26.2% of children (N=16) — as a kind character, and 6.6% (N=4) — as an ambivalent character, "kind and evil at the same time". Over 6.6% of the participants (N=4) failed to answer the question (Fig. 2).

A little more than half of the children (54.1%, N=33) considered that Huggy Wuggy behaves aggressively. The rest of the children either didn't answer this question (19.7%, N=12), or in their answers identified everyday behavior — "he loves to eat/to play/ to go for a walk", etc. (26.2%, N=16) (Fig. 3).

According to the data obtained more than half of children (59%, N=36) knew about the video game «Poppy Playtime», while 41% (N=25) were unfamiliar with it. Comparing these two groups of preschoolers allowed to reveal that children from the first group (children who were familiar with the content of the game) much more often perceived Huggy Wuggy as an evil and aggressive character (Table 2). Thus, the perception of Huggy Wuggy as of an evil and aggressive character is directly connected with the fact whether the child is familiar with the socio-cultural context of the character.

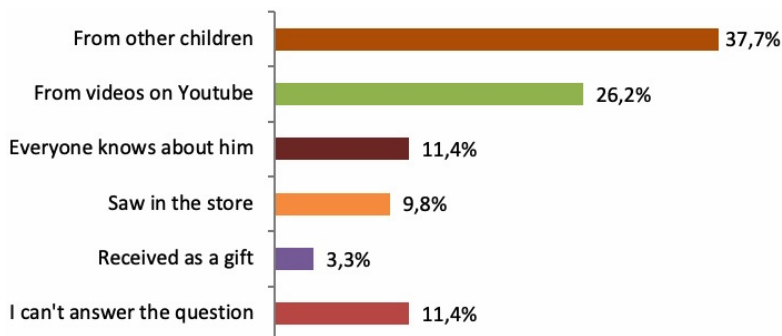


Fig. 1. Children's answer to the question "How did you get acquainted with Huggy Wuggy?" (N=61)

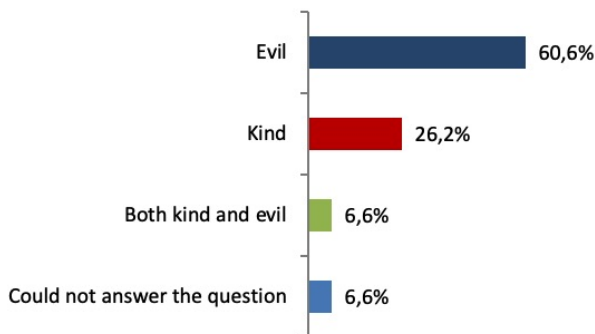


Fig. 2. Children's answer to the question "Do you think Huggy Wuggy is an evil or a kind character?" (N=61)

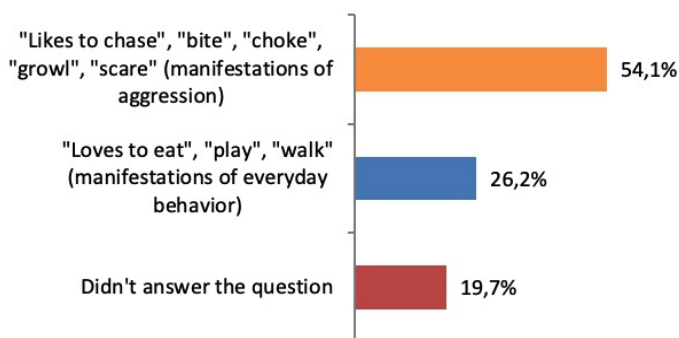


Fig. 3. Children's answer to the question "What does Huggy Wuggy like to do?" (N=61)

Table 2

### Manifestations of aggressive ideas about Huggy Wuggy in children's answers during the conversation

	Familiar with video game content 100% (N=36)	Unfamiliar with video game content 100% (N=25)	Significance of differences*
The answer to the question: «Is Huggy Wuggy a good or an evil character?»			
Evil	28 (77.8%)	12 (48%)	$\varphi^*_{emp} = 2.416$
The answer to the question «What does Huggy Wuggy like to do?»			
Behaves aggressively (attacks, strangles, kills, eats, etc.)	28 (77.8%)	10 (40%)	$\varphi^*_{emp} = 3.038$

All obtained empirical values of  $\varphi^*$  are in the zone of significance

At the same time it is important to emphasize that most children, familiar with the plot of the video game, had learned about it from

the videos on YouTube and did not play the game itself (65%, N=17). Thus, the perception of the image of Huggy Wuggy in these

children was based on the videos, which had little in common with the original plot of the video game. This circumstance requires further analysis and discussion, which are beyond the framework of the present paper.

### *Pictures*

With the aim of revealing the emotional charge of the image of Huggy Wuggy on the child, 107 pictures of Huggy Wuggy and 107 pictures of human being made by the children were analyzed by the research group.

In most cases (90.6%, N=97) children didn't try to mitigate the negative characteristics of Huggy Wuggy in their drawings, which testifies that they were not afraid of it. Trying to make the image smaller in size, decorating the character with pastel colors, adding decorative details (for example, bows), which reveals the tendency to make the image more acceptable and comfortable for perception, were revealed only in 9.3% (N=10) of pictures. While drawing Huggy Wuggy children from this group also provided comments, which testify, that they tried to cope with negative emotional charge, connected with this image.

Interestingly enough, aggressive trades (teeth and claws) in pictures of Huggy Wuggy were the most significant and attractive for 58.8% of children (N=63), while in pictures of human beings these details were found only in 1.8% (N=2) of cases (Fig. 4).

The analysis of pictures allowed to reveal high levels of anxiety (identified with thick lines, corrections etc.) in 91.5% of cases (N=98) in pictures of Huggy Wuggy and in 85.9% of cases (N=92) in pictures of human beings. The obtained data testify that the majority of children do not demonstrate specific anxiety connected with the image of Huggy Wuggy.

### *Non-participant observation of play process*

130 children aged from 4 to 6 took part in the research of play with the Huggy

Wuggy toy, 43% (N=56) were boys and 57% (N=74) were girls. The research was conducted in two age groups: middle preschoolers — 49% (N=64) and older preschoolers — 51% (N=66).

Non-participant observation of children's play in kindergarten revealed that Huggy Wuggy is rarely used by children in the play process. The research group identified 133 episodes of children's interactions with the Huggy Wuggy toy, with only 2.3% of them (N=3) being identified as roleplay episodes on everyday plots. Interestingly enough, not a single episode of well-elaborated plots with Huggy Wuggy was identified. In the majority of cases the research group observed manipulations with the toy (6.8%, N=9): children examined the toy, touched it and played with its paws.



Fig. 4. Pictures of Huggy Wuggy

In the identified play episodes with the Huggy Wuggy toy, clearly aggressive actions were spotted only in 6% of cases (N=8), and it was not aggression towards other participants. Children started to imitate as if the toy attacked someone, but stopped almost immediately. There was one case, when a boy tried to hit Huggy Wuggy with his hand, and then he hit it with a toy hammer, and then sat on it, trying to squash it. However, it is important to highlight, that this very boy also demonstrated aggressive behavior in the play without Huggy Wuggy: he was trying to break down LEGO constructions, pretended that instruments looked like pistols, he also tried to put on his group mates head objects from LEGO blocks. Much more often in comparison with aggressive actions (22.6%, N=30), the members of the research group observed emotionally colored active play episodes, where children were excited. Children's activity while interacting with Huggy Wuggy toy was mostly physical: children tossed the toy up, threw it to each other, played with its paws, and chased each other holding Huggy Wuggy in their hands.

The results of the non-participant observation revealed that many children (38.5%, N=50) used the toy as an attribute of prestige — they held it while doing something else (drawing, talking with each

other, playing LEGO blocks). At the same time 8.3% (N=11) of children used Huggy Wuggy as object to hug (a hugger).

According to the empirical data Huggy Wuggy is attractive both for boys and for girls (Fig. 5). Both boys (54.5%, N=6) and girls 45.5%, N=5) use Huggy Wuggy as an object for hugging.

Interestingly enough, in our sample only girls used the toy in roleplay on everyday subjects (100%, N=3). At the same time, girls more often than boys manipulated with the toy (77.8%, N=7), while boys more often than girls used Huggy Wuggy as an attribute of prestige (70%, N=35). Moreover, boys more often interacted with Huggy Wuggy in emotionally colored play episodes (61.9%, N=39).

The analysis of the empirical data allowed to reveal differences in peculiarities of children's play with Huggy Wuggy in two different age groups (Fig. 6). Children of middle preschool period (4 to 5 years) more often used the monster toy as an attribute of prestige (72%, N=36), and hugged a toy (72.7%, N=8). At the same time, only older preschoolers (5 to 6 years) used the toy in plot episodes (100%, N=3). It is important to highlight that in episodes of active (emotionally colored) play no age differences in interaction with the Huggy Wuggy toy were identified.

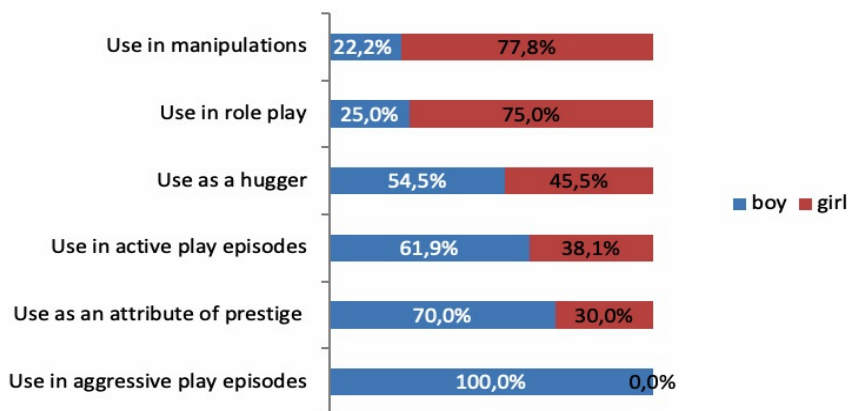


Fig. 5. Features of interaction with Huggy Wuggy among boys and girls

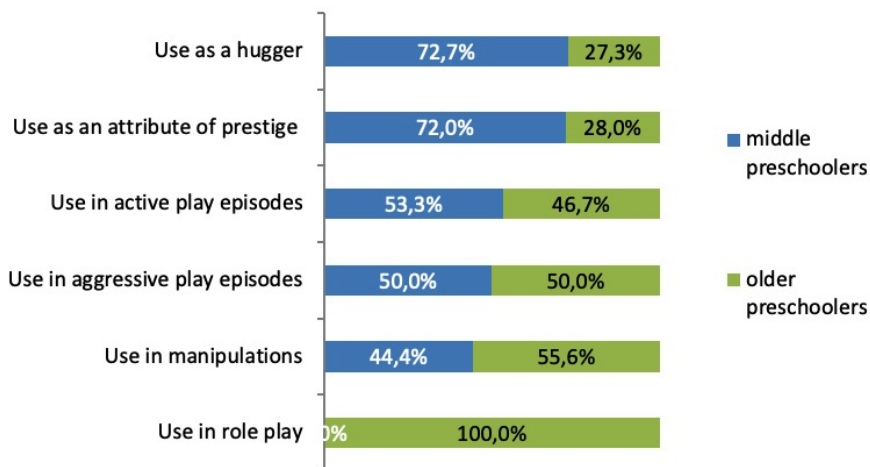


Fig. 6. Features of playing with a Huggy Wuggy toy in middle and older preschool age

## Discussion and concluding remarks

The empirical data gained in the process of research testify that in November 2022 the Huggy Wuggy monster toy was extremely popular among Russian preschoolers — almost all of the research participants were familiar with the character, and a bit less than half of the children owned the toy. Most children, who took part in the research, were not afraid of Huggy Wuggy and did not behave aggressively while interacting with the toy. The majority of children also did not demonstrate specific anxiety, connected with the image of Huggy Wuggy.

More than half of the children knew about the origins of Huggy Wuggy and were familiar with the video game «Poppy Playtime». Children, familiar with the content of the video game, more often perceived Huggy Wuggy as an evil and aggressive character, in comparison with children, who were not familiar with the content of the video game. Overall, children, who did not know anything about the context of Huggy Wuggy, played with it as with any other soft toy.

The data obtained echoes the data of similar research, devoted, particularly, to the toy Monster High [5; 7]. This Monster dolls appeared in Russian shops at the beginning of 2010s together with the TV series, and quickly became parents' concern. The authors of the research concluded that Monsters High did not scare children, did not provoke aggression, and did not immerse children in the “topic of scary death world”. Children played with these dolls the simple plots which were clear and interesting for them. Thus, the content of the play depends not that much on the toy itself, but rather on the socio-cultural context of the child's life, and on those relationships in which the child is involved [5; 7].

According to the data received in our research, preschoolers relatively rarely use Huggy Wuggy in the play itself (particularly in roleplay). The Huggy Wuggy toy attracts them mostly as a “hugger” — an object, which is required for emotional support, a toy which children take to bed, hug and touch when they need it. Due to long arms, Huggy Wuggy is comfortable to use in such kind of interactions.

Huggy Wuggy is also often used as an attribute of prestige (fashionable object), which children demonstrate to age mates. Today the phenomenon of children's use of toys for gaining prestige remains poorly studied. In some research works on this problem, it was demonstrated that age mates' opinion is one of the key factors of children's choice of toys. Particularly L. Borenstein argues (1996) that children prefer toys which are liked by their friends, because this has a positive influence on interaction with them [11]. A.-M. Puroila & E. Estola (2012), who studied popular children's toys, used the term «social value of toys», which describes the toy's ability to influence children's position in a group, and their relations with age mates [15]. The social value of the toy for the child was also studied by P. Mertala et al. The authors argue, that children want to possess certain toys, but it does not necessarily mean that they have the intention to play with them. In certain cases, toys are regarded more as objects for collecting, or

objects of prestige, rather than objects for play itself [13].

It is common knowledge, that contemporary children often ask for toys, because they want to possess something, what another child possesses, or something, which is more often possessed by everyone [1]. This process is stimulated by contemporary toy industry, which is aimed at creating such characters, who have already proved their popularity in other forms, particularly films or series (e.g. figures from Angry Birds and Star Wars) [13]. In the same way, the history of Huggy Wuggy started, who originally was a character of a video game, and who gained extreme popularity as a character of YouTube videos. Possessing this Monster toy affirms a certain status of the child, which in turn helps them to hold a particular position in group.

Thus, being, first of all, a fashionable toy, Huggy Wuggy is likely to quickly give way to another monster toy, which has already happened, e.g. with Monsters High.

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# Visual Model as a Cultural Tool for Preschool Children

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This study is aimed at testing the hypothesis of the relationship between visual modeling and the development of arbitrariness. The results of an empirical study conducted on a sample of 149 children (44.3% boys) aged 53 to 70 months ( $M=62.8$ ;  $SD=3.53$ ) are presented. The “Schematization” technique and subtests of the NEPSY II battery were used to diagnose executive functions. The results showed that schematized representations act as cultural means of regulating the behavior of preschoolers. A correlation was found between the results of the execution of the methodology for schematization by children of the senior kindergarten group and the results of diagnostics of the development of executive functions of preschoolers, both in the senior kindergarten group and in the preparatory group (longitudinal study). The results showed that in boys, the structuring of behavior control mechanisms is associated with the processes of schematization using signs. In girls — with the processes of schematization with the help of directions. It is suggested that the development of the mechanism of regulation of behavior with schematized representations in preschoolers follows two lines: 1) along the line of strengthening the emerging links and 2) along the line of their differentiation.

**Keywords:** arbitrariness, executive functions, preschool age, visual model.

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Представлены результаты эмпирического исследования, направленного на проверку гипотезы о связи наглядного моделирования и развития произвольности у детей дошкольного возраста, проведенного на выборке из 149 детей (44,3% мальчиков) в возрасте от 53 до 70 месяцев ( $M=62,8$ ;  $SD=3,53$ ). Использовались методика «Схематизация» и субтесты батареи NEPSY II для диагностики регуляторных функций. Полученные результаты дают возможность говорить о том, что схематизированные представления выступают культурными средствами регуляции поведения дошкольников.

Так, обнаружена корреляционная зависимость между результатами выполнения методики на схематизацию детьми старшей группы детского сада и результатами диагностики развития регуляции дошкольников, полученными как для дошкольников старшей группы детского сада, так и для дошкольников подготовительной группы в лонгитюдном исследовании. Также результаты указывают на то, что у мальчиков структурирование механизмов управления поведением связано в значительной степени с процессами схематизации с помощью знаков, в то время как у девочек — с процессами схематизации с помощью направлений. Полученные данные дают возможность говорить о том, что развитие механизма регуляции поведения со схематизированными представлениями у дошкольников идет по двум линиям: 1) по линии усиления складывающихся связей и 2) по линии их дифференциации.

**Ключевые слова:** произвольность, регуляторные функции, дошкольный возраст, наглядная модель.

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## Introduction

The problem of visual modeling and issues related to the ability of preschoolers to use visual models to solve various tasks were formed in the Russian school of child psychology in the context of the problem of cognitive development. L. Wenger wrote: “the formation of specifically human sensory abilities appeared in our research as the mastery of a certain form of mediation in solving perceptual tasks. This allowed us to further put forward a hypothesis according to which the formation of a child’s thinking (intellectual) abilities is based on mastering the mediated solution of mental tasks. Such hypothesis came from the unity of the structure of perceptual and intellectual processes, which are systems of cognitive (mental) actions ... and from the special role of the formation of the mediated nature of mental functions in the mental, and in particular in the cognitive, development of the child, as established by L. Vygotsky” [11].

From the above excerpt of the collective monograph, made by the staff of the laboratory of the Research Institute of Preschool Education of the USSR Academy of Medical Sciences under the leadership of L. Wenger, it follows that the idea of visual mediation arose in the process of studying the perception of preschoolers. Of particular importance, in our opinion, were the works of J. Piaget.

In his research concerning the development of perception in childhood, he assigned a special role to perceptual schemes. J. Piaget noted: “in our understanding, a perceptual scheme is the result of perceptual activity consisting of transfers and space-time transpositions, so that in the presence of similar or identical (in reality) objects, the subject resorts to the same methods of studying and the establishment of relationships, the result of which is recognition (the latter is not provided only by perception as such)” [15].

In other words, according to J. Piaget, a perceptual image is actually a scheme of

viewing an object, that is, its peculiar model. L.A. Wenger noted that “Jean Piaget distinguishes between empirical schemes corresponding to familiar forms of real objects and geometric schemes” [4].

One of the researchers of perception in Russian psychology, A. Yarbus, characterized the process of perception caused by the movement of the perceiver’s eyes as follows: “Eye movements reflect the processes of human thinking, and therefore their recordings allow to judge the observer’s thinking to some extent, as well as the thinking that accompanies the viewing of an object” [10].

Thus, we see that the authors whose works we refer to, talked about the connection between perceptual development and the development of thinking in preschool children.

It should be borne in mind that L. Vygotsky associated the development of mental activity in childhood with the development of sign mediation [7]. A. Zaporozhets drew attention to the fact that at preschool age, favorable conditions are created for the development of figurative forms of reflection of reality by children. He noted that in this process, “a significant role is played by children’s mastery of methods of visual modeling of certain phenomena and events, developed and cultivated by mankind since ancient times. This was done with the help of graphic images, diagrams, object models, dramatization games, etc.” [9].

From A. Leontiev’s theory of activity, it follows that the development of visual modeling methods occurs in the process of performing activities characteristic of preschoolers: plot-role-playing, visual activity, construction, etc.

All these types of activities, as noted by Russian researchers of childhood, are of modeling character. Indeed, if we look at preschoolers playing games, we see them model typical situations of interaction between people, while playing. In vi-

sual activity, the child reproduces the basic properties of the objects surrounding them. In this case, drawing pictures does not act as a work of art, but rather as a diagram of the object reflecting its basic properties. Wenger specifically highlighted this feature of children’s drawings: “The drawing of a preschooler is undoubtedly a visual model of a depicted object or a situation, and it is not by chance that many researchers of children’s drawings call them schematic, bearing in mind the similarity between the drawing of a child and schematic (i.e. model) images that are used in adult activities” [11]. Similarly, when children make buildings, they actually create three-dimensional models of various objects.

If J. Piaget [14] linked the development of imaginative thinking with the emergence of a symbolic function, i.e. with the distinction between the signified and the signifier, then L. Wenger, based his work on L. Vygotsky’s cultural and historical theory, beginning to understand children’s symbolism as a result of the development of symbolic forms available to preschoolers, which were, in fact, visual models. Moreover, he proposed to consider the cognitive abilities of preschoolers as a system of figurative model means and actions that allow operating these means. Mastering visual modeling was interpreted by L. Wenger as mastering it by cultural means. From a reference to L. Vygotsky’s theory, it followed that cognitive abilities should have such properties as arbitrariness, consistency and awareness.

The mastery of visual modeling has been studied in the works of many authors (P. Galperin, V. Davydov, A. Markov, L. Aidarov, D. Bogoyavlenskaya, L. Gurova, I. Yakimanskaya, etc.). They revealed wide possibilities of using visual models in teaching younger schoolchildren.

According to L. Wenger, the modeling process is often expressed “in the construction of mental visual models.” Given this

circumstance, the set task was to maximize the content of the process of using visual models by preschool children. In this regard, it became necessary to study the possibilities of preschoolers' differentiation of two plans: the plan of representations and the plan of reality and the replacement of real objects with representations about them.

At the same time, one important distinction was made. It consisted in the fact that actions related to the use of signs in logical thinking started being distinguished from actions using signs in imaginative thinking. The essence of this difference was the understanding that for logical thinking, mental actions were considered as actions built on the basis of logical rules. Such symbolic actions of logical thinking allowed comparison of the real object and the representation of it only at the end of the mental transformations performed by the subject. In the case of thinking that occurs figuratively, the thought process associated with the use of signs is initially realized in the logic of connections and relationships existing between real objects, by the rules of logic of the replaced reality itself.

As noted by L. Wenger, "The resulting image-representation is a visual, but generalized and schematized representation of an object or situation, highlighting the content that is significant from the point of view of solving a cognitive or practical problem" [2].

In this case, the actions of visual-imaginative thinking can be understood as actions that ensure the construction of schematized images that display connections and relationships between real objects, i.e. as actions aimed at building visual figurative models of real objects.

Taking this conclusion into account, a methodology for diagnosing the use of visual models by children was developed, based on replacing the schematized image (or model representation) with a real schematic representation of the situation, which is used to orient in this situation.

Since the cultural and historical theory of L. Vygotsky was the basis for constructing a methodology for diagnosing the use of schematized tools by preschool children, we formulated a hypothesis about the connection between visual modeling and the development of arbitrariness.

Arbitrariness is considered to be the ability to self-regulate arbitrary actions and is actively studied both in Russia, and abroad. In recent years, the study of self-regulation and related factors in Russian domestic research has gained great popularity, in particular, due to the partial transition of the education system to the online realm [13; 20]. When analyzing the development of a child's self-regulation, executive functions (EF) are the dominant construct [19]. They are a set of cognitive processes that are aimed at exercising arbitrary control of their behavior. In our work, we understand EF in accordance with Miyake and his colleagues' concept, according to which EF are three cognitive skills considered both jointly and in isolation, which are: 1) working memory, 2) cognitive flexibility and 3) inhibitory control [6; 16; 21].

Based on the above, the purpose of this study is to test the hypothesis of the relationship between visual modeling and the development of EF in preschool children.

### **Sample and methodological tools**

To test the hypothesis put forward, the method "Schematization" [2], subtests of diagnostics of EF of the NEPSY battery [5] and the method "Dimensional Change Card Sorting" [20] were used.

The method of "Schematization" was carried out with children of the senior kindergarten group, while the assessment of EF — twice — in senior and preparatory groups.

The method "Schematization" [3] includes 4 evaluation scales ("Signs", "Directions", "Signs and directions" and "Total score"). The methodology contains tasks for the use of conditional schematic images

for space orientation. The child is offered to find a correct way in an extensive system of little paths, using path symbols (a scheme or several landmarks). In order to find the right way, in tasks 1—2 it is necessary to take into account the directions of turns, in 3—4 — the nature of landmarks and their sequence, in 5—6 — combinations of landmarks with its certain sequence, and in tasks 7—10 — landmarks and directions of turns simultaneously.

The use of the NEPSY-II complex made it possible to diagnose the level of development of all components of the EF [6; 18]:

1) Inhibitory control (“Inhibition” technique). The test is aimed at assessing the child’s ability to restrain automatic reactions instead of needed ones (restraining control). The child is invited to look at a series of figures and arrows and name their shapes (circle, square) or directions (up, down). The test contains 2 series of shapes (geometric shapes, arrows). And 2 tasks in a series: naming figures and inhibition (naming figures the other way around).

During the execution, the time of naming the elements and the number of errors committed and corrected/uncorrected by the child are recorded. Based on these data, as well as the exact age of the child, combined points for naming and inhibition are calculated.

2) Auditory-speech working memory (Technique “Sentence Repetition”). During the test, the psychologist reads the sentences to the child one by one, and then asks him to repeat the sentences. Sentences are pronounced at a calm pace without any emotional color. Test execution time: 5-7 minutes. For the presence /absence of errors, the number of points determined by the methodology is awarded (2, 1 or 0 for each sentence).

3) Visual-spatial working memory (Technique “Memory for Design”). During this test, the child is to memorize 4 images

in order. The images are shown for 10 seconds each, and are removed out of sight when the time has elapsed. After each presentation, the child must select the required number of cards from the number of cards exceeding the required number (including distractors), and arrange them on the diagram, reproducing image show nearer. Points for content, spatial, bonus and total points are evaluated. The Content score evaluates the ability to retain image details in working memory. The Spatial score evaluates the ability to remember the spatial arrangement of elements. The bonus point evaluates the ability to simultaneously remember both the details of the images and their location.

4) Physical restraining control (the “Statue” technique). During the test, the child needs to maintain a stationary body position with their eyes closed for 75 seconds, restraining impulsive reactions (movements, sounds) in response to the distractions presented.

Assessment of cognitive flexibility (The method of “Dimensional Change Card Sorting” [20]). The child is asked to sort the cards three times according to different rules (by color, by shape, and then with the switching of these rules). The number of correct sorts is evaluated at each stage, and then the points obtained at each of the three stages are summed up to get the total score.

The study involved 149 children. Among them, 66 (44.3%) are boys and 83 (55.7%) are girls. At the beginning of the study, the age of the children was from 53 to 70 months old ( $M=62.8$ ;  $SD=3.53$ ).

## General results

The results of the diagnostics carried out using the “Schematization” technique are presented in Table 1. They include means, medians, standard deviations, minimums and maximums of estimates for all parameters considered.



Table 1

**Means, medians, standard deviations, minimums and maximums  
 of estimates of the “Schematization” methodology**

Scale/Characteristic	M	Me	SD	Max	Min
Schematization, signs	5.83	7.00	2.478	0	8
Schematization, directions	10.78	12.00	4.479	0	16
Schematization, signs and directions	8.75	8.00	3.680	0	18
Schematization, total score	25.62	27.00	7.844	4	42

Using the Student’s t-test, it was found that there were no significant differences in the results of boys and girls obtained using the “Schematization” technique for the following indicators: “total score” ( $t=-0.339$ ;  $p=0.735$ ), “signs” ( $t=0.869$ ;  $p=0.386$ ), “directions” ( $t=-0.087$ ;  $p=0.930$ ) and “signs and directions (together)” ( $t=0.196$ ;  $p=0.845$ ).

The scores on all scales of the methodology turned out to be related. The strength of the connections is from weak to strong, which suggests that in further consideration it makes sense to refer to all 4 grades, and not just focus on the total score.

Figure 2 shows a correlation pleiad of assessments of the implementation of the “Schematization” technique and subtests of diagnostics of the level of development of EF in senior group (all participants,  $r>0.2$ ,  $p<0.05$ ).

Note that the results of the implementation of the “Schematization” technique were not related to any scale with the results of the implementation methods: “Dimensional Change Card Sorting” — diagnostics of the level of development of cognitive flexibility; “Inhibition” — diagnostics of inhibitory control; “Statue” — diagnostics of the regulation of maintaining posture.

The most connections were found between the results of the implementation of the “Schematization” and “Memory for Design” techniques.

The estimates obtained by the indicator “Schematization, signs and directions” are not related to the results of children performing any methods for diagnosing the level of development of EF.

Since the diagnosis of the level of development of EF was carried out twice — in the senior and preparatory groups, and

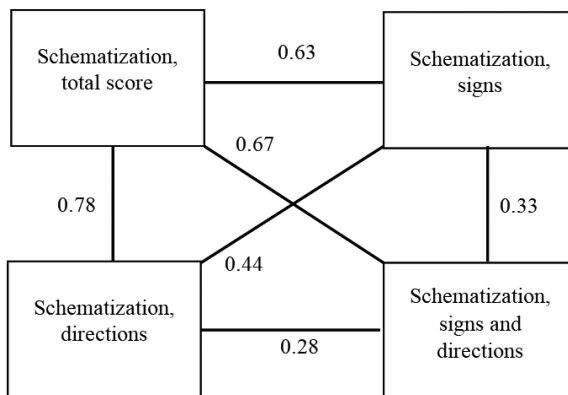


Fig. 1. Correlation pleiad of estimates of different scales of the “Schematization” technique ( $r>0.2$ ;  $p<0.05$ )

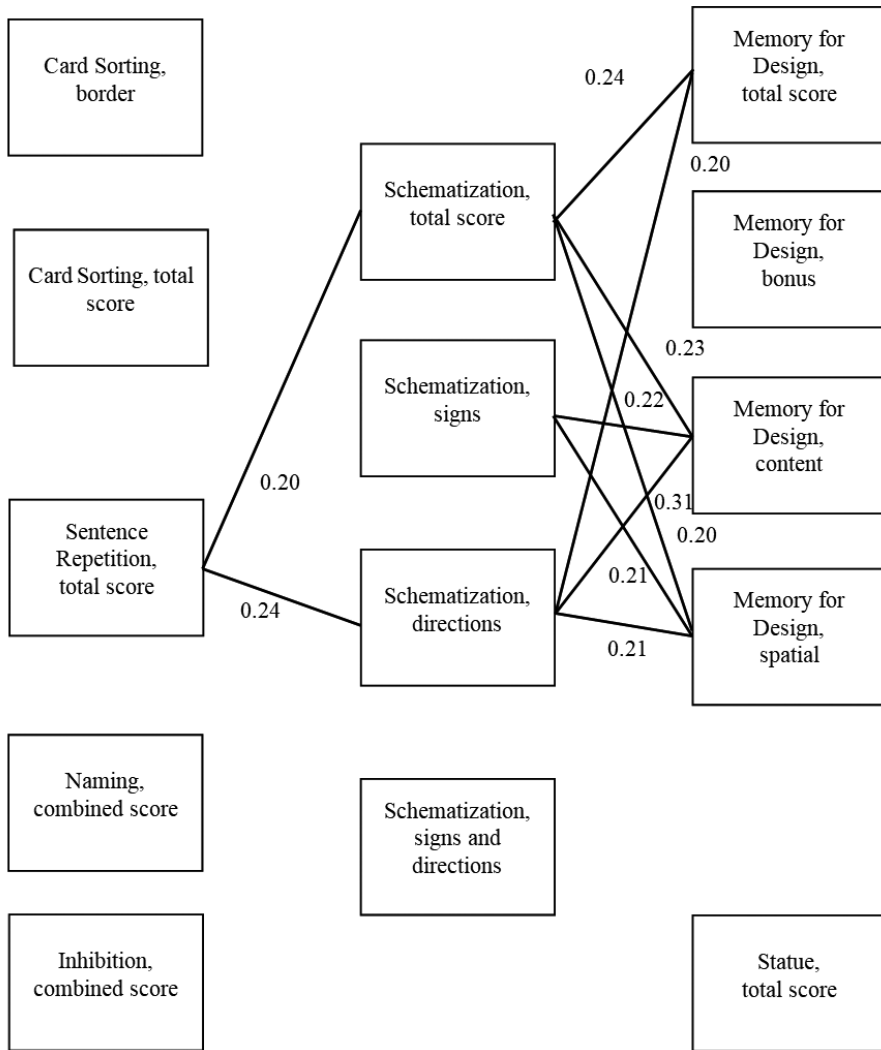


Fig. 2. Correlation pleiad of estimates of scales of the “Schematization” technique and results of diagnostics of the level of development of EF (senior group, all participants,  $r>0.2$ ;  $p<0.05$ )

schematization — only in the senior group, we had the opportunity to compare the relationship of the results of the “Schematization” technique obtained in the senior group with the results that were obtained on the basis of the use of subtests of diagnostics of the development of EF in the senior and preparatory groups.

Figure 3 shows a correlation pleiad of assessments of the implementation of the “Schematization” methodology by preschoolers of the senior group and methods aimed at diagnosing the level of development of EF by preschoolers of the preparatory group (all participants,  $r>0.2$ ,  $p<0.05$ ). For simplification, correlation coefficients

were not stated beforehand, but their values varied in the range from 0.20 to 0.39

The results of the implementation of the “Schematization” technique by children in the senior group for the entire sample were not related on any scale with the results of

the implementation of the “Sentence Repetition” techniques — diagnostics of the level of development of auditory-speech working memory and “Statue” — diagnostics of the regulation of posture preservation in the preparatory group.

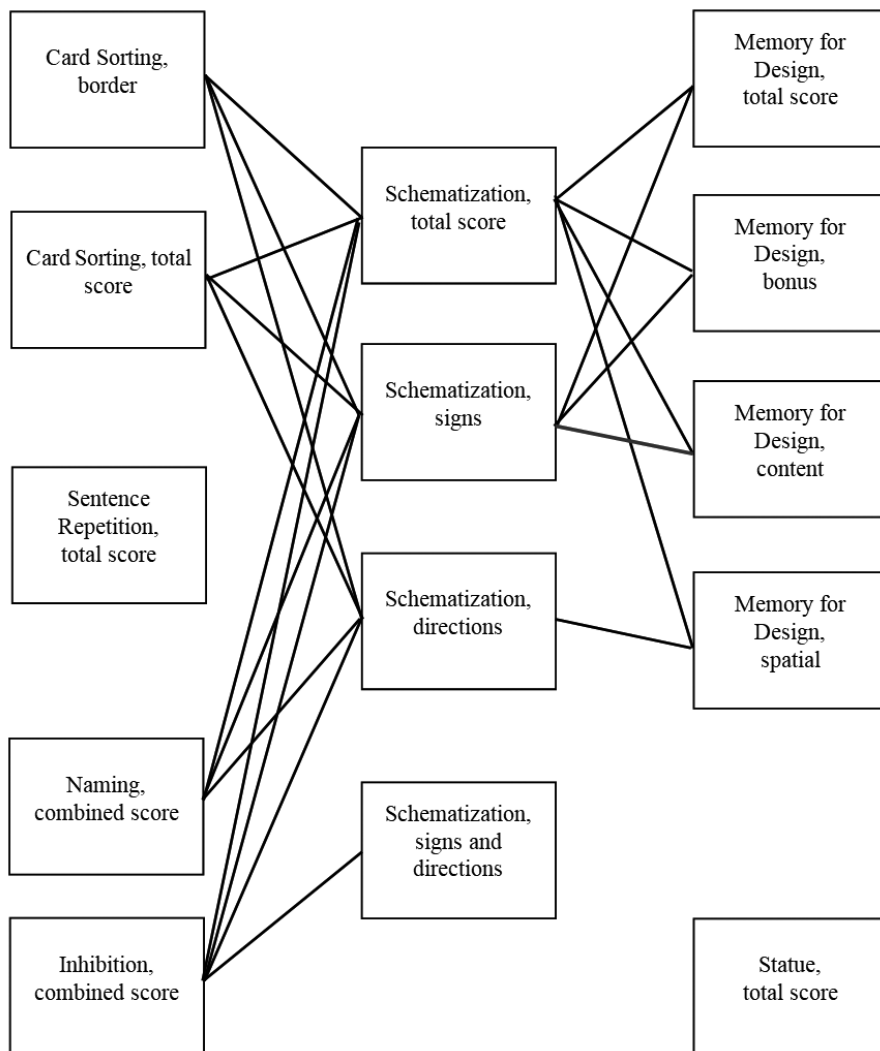


Fig. 3. Correlation pleiad of estimates of scales of the “Schematization” methodology of preschool children of the senior group and the results of diagnostics of the level of development of EF of the preparatory group (all participants,  $r>0.2$ ;  $p<0.05$ )

Figure 4 shows the correlation pleiades of assessments of the implementation of the “Schematization” technique and techniques aimed at diagnosing the level of development of EF for boys of the senior and preparatory groups ( $r > 0.2$ ,  $p < 0.05$ )

It should be noted that for boys, all the connections between the results of the “Schematization” method and subtests for diagnosing the EF development level in the senior group are observed in the school preparatory group as well. In general, there are more connections between the results of the “Schematization” method (senior group) and estimates of the EF level in the preparatory group than in the senior group. Assessments of EF are more related to the results on the “Schematization, signs” scale (3 out of 4 for the senior group and 6 out of 10 in the preparatory group).

Figure 5 shows the correlation pleiades of assessments of the implementation of the “Schematization” technique in the senior group and the results of techniques aimed at diagnosing the level of development of EF in the senior and preparatory groups of girls.

We note that for girls, most of the connections between the results of the “Schematization” method and subtests for diagnosing of EF development level in the senior group are observed in the preparatory group as well. In general, there are more connections between the results of the implementation of the “Schematization” technique (senior group) and assessments of the level of EF in the preparatory group than in the senior group. Assessments of the level of development of EF are more related to the results on the “Schematization, direction” scale (5 out of 9 for the senior group and 8 out of 18 in the preparatory group).

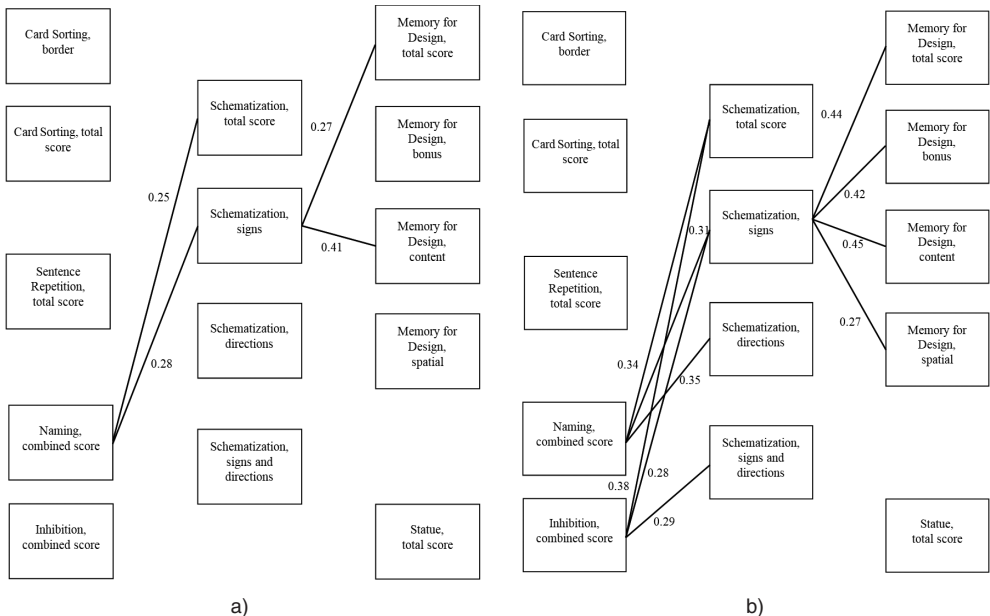


Fig. 4. Correlation pleiades of estimates of the “Schematization” technique scale (senior group) and the results of diagnostics of the EF development level: a) senior group; b) preparatory group (boys,  $r > 0.2$ ;  $p < 0.05$ )

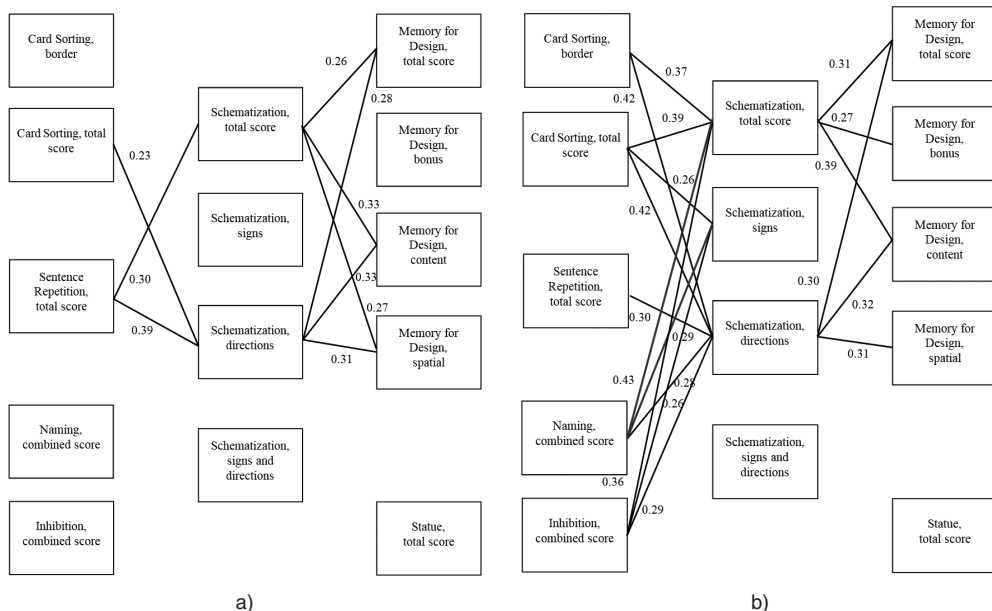


Fig. 5. Correlation pleiades of assessments of the scales of the “Schematization” technique (senior group) and the results of diagnostics of the level of development of EF a) senior group; b) preparatory group (girls,  $r > 0.2$ ;  $p < 0.05$ )

## Discussion of results

A comparison of data across the entire sample shows that schematized representations are the cultural means of regulating the behavior of preschoolers. This statement is based both on the results of the analysis of scientific literature and on the data obtained during the study. In particular, it was found that there is a correlation between the results of implementation of the methodology for schematization (done by children of the senior kindergarten group) and the results of diagnostics of the regulation development, obtained for both preschoolers of the senior kindergarten group and for preschoolers of the school preparatory group (see Fig. 2 and Fig. 3). Moreover, correlations between the results of “Schematization” technique diagnostics, and the results of measuring various com-

ponents of EF show that the number of indicators that have correlations with the results of the diagnostic method of preschoolers’ schematization development level increases twice in the preparatory group. The results obtained clearly confirm the hypothesis put forward.

An unexpected result was obtained when analyzing the data of the implementation of the subtest “Sentence Repetition, total score”, aimed at diagnosing the level of development of auditory-speech working memory of preschoolers of the senior and preparatory groups (for the entire sample) and assessments of the implementation of the “Schematization” technique among preschoolers of the senior group. It turned out that the correlation between these indicators exists in children from the senior kindergarten group and is absent in preschoolers of the preparatory group.

Such result can be explained from the standpoint of L. Vygotsky's cultural-historical theory. The fact is that the results obtained for the senior and preparatory groups of the entire sample of preschoolers show, during the transition from the senior kindergarten group to the preparatory group, a process of differentiation and structuring of the EF of preschoolers was observed. It is expressed, in particular, in establishing links between the results of the implementation of the "Schematization" technique and the results of diagnostic tests of EF, followed by their extension to other subtests. L. Vygotsky gave the following characterization of such processes: "The process of further functional differentiation of consciousness is accomplished not by the direct emergence of a new dominant function and a new system of interfunctional relations corresponding to it, but by restructuring the old system and it growing into a new one" [8]. He emphasized that "the more differentiated the system of consciousness in which this restructuring takes place, the more difficult the process of rebuilding from the old system to a new one is" [8]. Thus, the lack of correlation in the preparatory group can be understood as a consequence of the functional differentiation of preschool children's consciousness.

A comparison of the correlation Pleiades of the "Schematization" technique's scales estimates and the results of diagnostics of the level of development of EF in boys and girls of the senior and preparatory groups show that the development follows two lines: 1) the line of strengthening the emerging links and 2) the line of their differentiation.

The first line manifested itself in an increase in the values of the correlation coefficients for those correlation dependencies that were previously established for the boys of the senior group. Indeed, if for the senior group the values of the correlation coefficients were limited by the limits of

$r=0.25-0.28$ , then in the preparatory group the same relationships acquired higher values of  $r=0.31-0.35$  (see Fig. 4 and Fig. 5).

The second line was characterized by correlations with those indicators that were not previously included in the correlation relationship. Thus, during the study it was found that all the components of the schematization processes were included in interaction with the components of EF.

In addition, it can be said that there is ground for schematized representations to be interpreted as a result of the development of visual models as cultural means.

Moreover, the data obtained indicates that schematized representations are part of the means of regulating the behavior of preschool children.

The results obtained indicate that in boys, the structuring of behavior control mechanisms is largely associated with the processes of schematization using signs, while in girls — with using directions.

## Conclusion

To summarize, as a result of the conducted research, we can talk about the confirmation of the hypothesis about the connection of schematized representations of preschoolers and EF. The data obtained in the study show that schematized representations are cultural means of regulating the behavior of preschoolers. Schematized representations develop throughout preschool childhood and are integrated into the preschoolers' system of regulation of behavior.

Schematized representations associated with the use of orientation using models constructed with signs in boys and directions in girls play a significant role in regulating the behavior of preschoolers.

The development of the mechanism of regulation of behavior with schematized representations in preschoolers follows two lines: 1) the line of strengthening the emerging links and 2) the line of their differentiation.

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# Gender Features of Migration Attitudes of Omsk Gifted Schoolchildren with Different Levels of Resilience and Subjective Well-being

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The study is aimed at identifying gender characteristics of the connection between resilience and subjective well-being and the migration attitudes of Siberian schoolchildren. The survey involved students of secondary educational institutions in Omsk and Omsk Region (N=461), from 14 to 17 years old (15.5, SD=1.39), 268 (58.1%) girls, 193 (41.9%) boys. Methods of testing and questioning, expert interviews were applied. Research methods: S. Maddy's Hardiness Test adapted by D.A. Leontiev, E.I. Rasskazova; Method of Diagnosing the Subjective Well-being of the Individual by R.M. Shamionov, T.V. Beskova; the Scale of Migratory Attitudes of Personality by S.A. Kuznetsova; the author's questionnaire, which included questions about the socio-demographic characteristics of schoolchildren, their intellectual activity. The obtained results testify to the existence of a connection between hardiness and subjective well-being with the migratory attitudes of intellectually gifted and motivated girls. At the same time, the migratory attitudes of young men are practically not connected with the above-mentioned constructs, regardless of their level of giftedness and activity. In the group of gifted girls, a decrease in hardiness, in particular, control and involvement, as well as subjective, in particular, emotional and ego well-being, leads to an increase in migratory attitudes. In the group of motivated girls, in a similar way, attitudes about migration are associated with control and involvement, subjective well-being. The conclusion is made about the differentiated connection of gender and giftedness with the migration attitudes of schoolchildren, its mediation by the level of their resilience and well-being.

**Keywords:** intellectual giftedness, school age, girls and boys, migration behavior, subjective well-being, control, challenge, risk taking, commitment, hardiness, Siberian region.

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## Гендерные особенности миграционных установок одаренных омских школьников с разным уровнем жизнестойкости и субъективного благополучия

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Представлены результаты исследования, направленного на выявление гендерных особенностей связи жизнестойкости и субъективного благополучия с миграционными установками сибирских школьников. В опросе приняли участие учащиеся средних общеобразовательных учреждений Омска и Омской области (N=461), от 14 до 17 лет (15,5, SD=1,39), 268 (58,1%) девушек, 193 (41,9%) юноши. Применены методы тестирования и анкетирования, экспертного интервью. Методики исследования: тест жизнестойкости С. Мадди в адаптации Д.А. Леонтьева, Е.И. Рассказовой; методика диагностики субъективного благополучия личности Р.М. Шамионова, Т.В. Бесковой; шкала миграционных установок личности С.А. Кузнецовой; авторская анкета, включившая вопросы о социально-демографических характеристиках школьников, их интеллектуальной активности. Полученные результаты свидетельствуют о наличии связи жизнестойкости и субъективного благополучия с миграционными установками интеллектуально одаренных и мотивированных девушек. При этом миграционные установки юношей практически не связаны с вышеназванными конструктами, вне зависимости от уровня их одаренности и активности. У одаренных девушек низкий уровень жизнестойкости, в частности, контроля и вовлеченности, а также субъективного, в частности, эмоционального и

эго-благополучия связан с высокими миграционными установками. У мотивированных девушек сходным образом установки о миграции связаны с контролем и вовлеченностью, субъективным благополучием. Делается вывод о дифференцированной связи гендера и одаренности с миграционными установками школьников, ее опосредованности уровнем их жизнестойкости и благополучия.

**Ключевые слова:** интеллектуальная одаренность, школьный возраст, девушки и юноши, миграционное поведение, субъективное благополучие, контроль, принятие риска, вовлеченность, жизнестойкость, Сибирский регион.

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## Introduction

The vast territory of Russia provides opportunities for the use of its diverse resources, but leads to uneven distribution of them: the so-called regional polarization is formed, leading to the strengthening of the already powerful and the weakening of the subjects of the Russian Federation, which are scarce in terms of human capital. An example is the heterogeneity of the distribution of higher professional education and secondary vocational education institutions throughout the country (“educational oases and deserts”), which gives rise to differences between regions in meeting the needs of the population in vocational training. This provokes young people, as the most mobile cohort [4], to migration activity, which falls on two peaks: 17-19 years old (choice of an educational institution) and 21-23 years old (choice of a place of work) [3]. The migration outflow of young people “de-energizes” peripheral regions, feeding large cities and their agglomerations on their own. The popularity of the city in terms of educational migration is determined by experts counting the increase in the

number of 18-year-old Russians. It is pronounced in St. Petersburg, Leningrad and Tomsk regions. The maximum reduction in the number of 18-year-olds was recorded in the Republic of Tyva, the Yamal-Nenets and Chukotka Autonomous Okrugs [3]. This trend is strengthened by the stereotype about a significantly higher quality of education in the capital [13]. An important incentive to move from one’s hometown is the satisfaction of educational needs at a higher level [5], which also implies serious preparation for entering the capital’s university, which means that another selection aggravates the polarization: the most capable and self-confident people leave the provinces. There is not just migration, but the so-called “brain drain” — the loss of mental capital [12], the movement of talented young people who can advance the development of the region.

Giftedness is traditionally understood as “a qualitatively peculiar combination of abilities, on which the possibility of achieving greater or lesser success in the performance of one or another activity depends” [14, p. 17]. It manifests itself in an unsatis-

fied need for knowledge and a high level of development of thought processes, supra-situational activity and adequate interaction of the individual with the world and other people [1]. Numerous typologies divide giftedness according to the form of manifestation (explicit/hidden), breadth (general/special) [2], type of activity (intellectual, artistic, leadership, etc. [7]). But, despite the type, a sign of giftedness is the original, atypical and highly effective performance of activities [9], success in it [10]. Diagnosis of giftedness, as a rule, comes down to the use of ability tests (including IQ measurement) and the analysis of a student's extracurricular activities [11]. In this study, we rely on the latter criterion, testing the hypothesis about the relationship between giftedness, migration attitudes, personal characteristics and gender of students in secondary educational institutions.

### Organization of the Study

The purpose of the study is to identify the gender characteristics of the migration attitudes of intellectually gifted Omsk schoolchildren with different levels of hardiness and subjective well-being. Testing methods were used (the hardiness test by S. Maddy adapted by D.A. Leontiev, E.I. Rasskazova [8]; the Method of Diagnosing the Subjective Well-being of the Individual by R.M. Shamionova, T.V. Beskova [15]; the Scale of Migratory Attitudes of the Personality, S.A. Kuznetsova [6]), questioning (questions about the socio-demographic characteristics of schoolchildren, their intellectual activity) and expert interviews (to clarify the information received and form empirical criteria for the giftedness of schoolchildren). Sample: 461 schoolchildren aged 14-17 ( $M=15.5$ ,  $SD=1.39$ ), including 268 (58.1%) girls and 193 (41.9%) boys. The sample was divided into three groups according to the level of extracurricular activity in the intellectual sphere (competitions, olympiads, scientific and practi-

cal conferences (SPC) of various levels), considering the data of an expert interview with the head of the Growth Center, which has many years of experience working with gifted students:

1. Passive — schoolchildren not participating in intellectual activities ( $N=119$ , 58 (48.7%) girls, 61 (51.3%) boys). It cannot be argued that they are not gifted, but at the time of the survey, no markers of a high level of ability in any area were noticed in their activity.

2. Motivated — participants of school and district / city competitions ( $N=200$ , 127 (63.5%) girls, 73 (36.5%) boys), demonstrating interest and activity in mastering subjects beyond the level of the school curriculum.

3. Gifted — participants of regional, Russian and international olympiads, competitions and scientific and technical competitions ( $N = 137$ , 81 (59.1%) girls, 56 (40.9%) boys), at least the best in their city/district or in the region.

### Research Results

There is a gender specificity in the constructs we study: migration attitudes are significantly more pronounced in girls, and hardiness and its components (control, challenge), as well as ego-well-being, in boys (see Table 1).

A study of the characteristics of migration attitudes in boys and girls with different levels of intellectual giftedness did not show significant differences. However, among all the categories of schoolchildren, young men who do not aspire to participate in intellectual competitions have the weakest of the observed migration attitudes, and intellectually gifted girls have the strongest desire to move from their hometown (see Table 2).

To establish the intrapersonal prerequisites for the migratory behavior of schoolchildren with different levels of intellectual giftedness, a comparison was

Table 1

**Migration attitudes, hardiness and subjective well-being of boys and girls**

Construct	Boys	Girls	t	p
Migration installations	<b>49.04</b>	<b>50.97</b>	<b>2.07</b>	<b>0.04</b>
Hardiness	<b>78.98</b>	<b>72.72</b>	<b>-2.86</b>	<b>0.00</b>
Control	<b>29.32</b>	<b>26.42</b>	<b>-3.41</b>	<b>0.00</b>
Commitment	<b>33.40</b>	<b>30.69</b>	<b>-2.64</b>	<b>0.01</b>
Challenge	16.26	15.61	-1.28	0.20
Well-being				
Emotional	50.99	49.59	-1.51	0.13
Existential-activity	50.15	50.35	0.21	0.83
Ego well-being	<b>51.77</b>	<b>49.02</b>	<b>-2.98</b>	<b>0.00</b>
Hedonistic	51.20	49.59	-1.73	0.08
Socio-normative	50.11	50.51	0.44	0.66
Subjective	51.09	49.71	-1.50	0.13

Note. Here and below, for migration attitudes and subjective well-being, the values normalized by the sample are given.

Table 2

**The connection of intellectual talent with migration attitudes of boys and girls**

Type of pupils	Migration installations	
	Boys (F=0.02, p=0.9)	
Gifted (G)	49.12	Gifted (G)
Motivated ((M)	49.15	Motivated ((M)
Passive (P)	48.87	Passive (P)

made of the migratory attitudes of boys and girls with different levels of hardiness and subjective well-being within each gender group.

In the male subsample, no significant differences in the manifestation of migratory attitudes depending on the level and component of hardiness ( $F_{emp}=2.87$  at  $p=0.06$ ), as well as most types of subjective well-being, were found. Only with the growth of social-normative ( $F_{emp}=3.42$ ,  $p=0.04$ ) and hedonistic ( $F_{emp}=3.48$ ,  $p=0.04$ ) well-being in motivated young men do migration attitudes decrease. That is, young people who believe that their behavior is socially approved, their actions comply with the norms accepted by the reference groups, and their living conditions

are quite acceptable, are less likely to leave their hometown.

The analysis of the female subsample showed that the connection between hardiness and all its components extends to the group of gifted girls, and control and commitment also extends to the group of motivated girls. At the same time, in all cases, an increase in hardiness contributes to a decrease in migration attitudes (see Table 3).

The connection between the components of subjective well-being is also more often recorded in groups of gifted girls, less often and weaker in motivated girls, and only in one case in the group of passive girls (see Table 4).

Among gifted girls, schoolgirls with low levels of emotional and ego well-being,

Table 3

**The connection between hardiness and migration attitudes in girls with different levels of giftedness**

Construct	Type of pupils	Migration attitudes of girls with different levels of hardiness			F	Sig.
		Low	Medium	High		
Hardiness	<b>G</b>	<b>54.86</b>	<b>51.60</b>	<b>42.72</b>	<b>5.69</b>	<b>0.00</b>
	M	52.16	50.92	46.76	1.24	0.29
	P	51.15	48.40	50.69	0.55	0.58
Control	<b>G</b>	<b>55.78</b>	<b>47.84</b>	<b>40.35</b>	<b>8.68</b>	<b>0.00</b>
	<b>M</b>	<b>52.93</b>	<b>49.97</b>	<b>44.74</b>	<b>3.12</b>	<b>0.05</b>
	P	50.89	48.75	48.28	0.42	0.66
Commitment	<b>G</b>	<b>53.98</b>	<b>52.39</b>	<b>41.67</b>	<b>4.61</b>	<b>0.01</b>
	<b>M</b>	<b>50.75</b>	<b>51.94</b>	<b>42.72</b>	<b>3.12</b>	<b>0.05</b>
	P	52.85	48.93	49.36	0.86	0.43
Challenge	<b>G</b>	<b>55.74</b>	<b>52.47</b>	<b>47.45</b>	<b>2.91</b>	<b>0.06</b>
	M	52.23	51.94	48.64	1.34	0.27
	P	52.36	49.15	49.69	0.45	0.64

Table 4

**The relationship between subjective well-being and migration attitudes of girls with different levels of giftedness**

Type of well-being	Type of pupils	Migration attitudes of girls with different levels of hardiness			F	Sig.
		Low	Medium	High		
Subjective	<b>G</b>	<b>57.32</b>	<b>50.90</b>	<b>45.50</b>	<b>3.64</b>	<b>0.03</b>
	<b>M</b>	<b>57.33</b>	<b>51.08</b>	<b>44.66</b>	<b>4.48</b>	<b>0.01</b>
	P	52.18	49.61	48.21	0.45	0.64
Emotional	<b>G</b>	<b>56.93</b>	<b>53.77</b>	<b>46.91</b>	<b>6.19</b>	<b>0.00</b>
	M	52.10	52.89	49.66	1.25	0.29
	P	51.23	48.82	50.20	0.24	0.78
Existential-activity	<b>G</b>	<b>55.66</b>	<b>51.62</b>	<b>47.49</b>	<b>2.16</b>	<b>0.12</b>
	M	55.64	51.05	45.81	2.55	0.08
	P	52.72	49.70	47.76	0.84	0.44
Ego well-being	G	56.91	49.89	48.22	<b>3.34</b>	<b>0.04</b>
	M	<i>53.11</i>	<i>51.33</i>	<i>45.41</i>	<i>2.88</i>	<i>0.06</i>
	P	55.01	48.83	49.39	1.67	0.20
Hedonistic	G	56.28	50.32	48.90	2.07	0.13
	M	<i>55.90</i>	<i>49.74</i>	<i>50.75</i>	<i>2.94</i>	<i>0.06</i>
	<b>P</b>	<b>56.43</b>	<b>49.07</b>	<b>36.95</b>	<b>6.88</b>	<b>0.00</b>
Socio-normative	G	55.59	51.86	47.21	1.76	0.18
	M	56.04	50.89	46.61	1.81	0.17
	P	53.67	49.88	45.09	1.37	0.26

as well as with reduced overall subjective well-being, are more likely to leave their

hometown. For motivated girls, only an integral indicator of well-being is associated

with migration attitudes, and hedonistic and ego-well-being at the level of a trend determines the formation of attitudes towards migration. As for the passive girls, migration attitudes are determined only by the level of hedonistic well-being: they are probably quite satisfied with their lives and their achievements, not striving for more.

### **The Discussion of the Results**

Hardiness and its components are connected with the migratory attitudes of girls, without in any way determining what is recorded in the male subsample. The fact that this feature is less expressed in girls than in boys, and migratory attitudes are stronger, suggests that these psychological properties have an inverse proportion relationship. The relationship between these phenomena is more difficult to trace in young men, probably due to higher hardiness and subjective well-being and weak migratory attitudes. Hardiness is reflected in the attitudes of intellectually gifted and motivated, but not passive, students: the smarter the girls are, the stronger the connection between their migratory attitudes and phenomena of an intrapersonal nature is.

The level of emotional and ego well-being serves as a criterion by which migratory attitudes of gifted girls differ, and the integral indicator of subjective well-being acts as a similar condition for a sample of motivated schoolgirls. Intellectually passive girls, whose migratory attitudes are associated with hedonistic well-being, with the satisfaction of basic needs, and this is the most "mundane" of all types of girls. In young men, social-normative and hedonistic well-being correlates with attitudes towards migration only in the group of motivated students.

The connection of personal factors only with the migration attitudes of girls can be explained by the specifics of gender socialization. If boys are taught to concentrate on specific actions, then girls are taught to take into account the nuances of interpersonal

relationships, to reflect on psychological phenomena. Therefore, not only the objective parameters of living in a particular city, but also their own condition in it for girls becomes important when deciding whether to move. If personalized relations are built with the city, it is considered wider than just a territory, it is filled with meanings that resonate with personal biography. Among motivated girls (as well as gifted ones) going to migrate are those who have not found a suitable job in their hometown, who feel helpless and unable to change anything in their environment. Also, the socialization of modern women acquires new features, giving freedom in the manifestation of both feminine and masculine qualities that determine the psychology of a winner, a conqueror, and moving to another city is a good training and a marker for testing oneself in a competitive environment. On the other hand, having a more pronounced self-preserving behavior, girls, especially gifted ones who are able, for example, to enter a university in the capital, form paradoxical at first glance links between high risk taking and low migration attitudes. Schoolgirls who are ready to leave really assess their opportunities and decide to take this step only if there is minimal risk, full confidence in their abilities.

In gifted girls, high emotional and ego well-being are associated with a lower level of migratory attitudes. Fatigue from academic affairs, olympiads, competitions, psychological dependence on the results of these activities destabilize the state of girls, which is reflected in their self-esteem. The feeling of "underestimation" is aggravated with the ratio of "contribution" (forces, time, hardships) and the level achieved (prizes, rating, etc.). There is a desire to get rid of the burden of responsibility, starting everything "from scratch", which is unlikely to be done in the already existing life circumstances, or, on the contrary, to compensate for one's dissatisfaction in other, more favorable and conducive to development conditions. In both



cases, the move can be regarded by gifted schoolgirls as a cardinal way to solve accumulated problems, achieve harmony and tranquility in relationships with themselves, and strengthen confidence. This decision is made easier when the current place of residence does not satisfy the basic needs of girls (environmental, housing, material, etc.), regardless of their level of giftedness.

### Conclusion

The results of our study allow us to say that the schoolchildren of Omsk and the Omsk Region, who made up our sample, are characterized by an average level of hardiness, subjective well-being, and migration attitudes. At the same time, migration attitudes among girls are significantly more pronounced than among boys, and indicators of hardiness and its components (control, challenge), as well as ego-well-being are lower.

The data obtained indicate that the level of intellectual giftedness and gender characteristics of schoolchildren are not directly related to the migration attitudes of schoolchildren, but if we consider this as a trend, then passive students are the least inclined to migrate, the most inclined are gifted and motivated ones.

The most pronounced relationship was found between the parameters “hardiness”, “subjective well-being” and migratory at-

titudes of schoolchildren of different sexes and levels of intellectual giftedness. Unwillingness to move is shown by motivated young men who are actively involved in social ties and activities relevant to them, satisfied with the conditions of life, striving to build their behavior and relationships with others based on their life guidelines, moral values and ideas of well-being.

Also, the obtained results allow us to say that the weakening of hardiness increases the migration attitudes of gifted and motivated girls. Similar tendencies are typical for those who are not satisfied with themselves and their emotional state.

Thus, the results of the study confirmed our assumption about the existence of a relationship between giftedness, migration attitudes, personal characteristics and gender of students in secondary general education institutions. Gifted youth of the Omsk Region revealed changes in the formation of migration attitudes with a decrease in the level of subjective well-being and hardiness. Therefore, targeted psychological work in this direction, primarily with girls, will provide an opportunity not only to improve their emotional well-being and increase self-confidence, but will also create conditions for searching for opportunities for self-realization within their region, while maintaining its educational, reproductive and economic potential.

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# Parent-Preschooler Kid’s Activities in the Time of COVID-19 Outbreak: an Autoethnography on Child’s Second Language Acquisition

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The present study reported a life experience of a teacher family in Indonesia with a 4-year-old daughter. The observation occurred from March 2020 to July 2021 during the COVID-19 pandemic. This stay-at-home moment became an opportunity to create more parent-kid preschooler bonding and interaction that could impact the developing children language. Indonesian is our family native language (L1); therefore, the exposure started earlier for the kids. However, as parent-kid interaction was enhanced during the pandemic, we boosted our kid English (L2) with a variety of Edu-home activities such as reading aloud, storytelling, role-playing, and watching YouTube-kid. Her language production was documented, and the progress was analyzed. The aim was to generate a more profound understanding of our roles as parents in scaffolding the acceleration of preschoolers’ English development, especially in creating meaningful activities. Going through an autoethnography, we reflect on our practice to know how the family members played the role of a language catalyst and which activities were taken more into account.

**Keywords:** child language development, COVID-19, parent-kid interaction, early childhood, autoethnography.

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# Взаимодействие родителей с ребенком-дошкольником в период пандемии COVID-19: этнография изучения второго языка

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Представлены результаты изучения развития языковых навыков 4-летнего ребенка в индонезийской семье в период пандемии COVID-19. Основные задачи проводимого исследования — установить роль семьи как языкового катализатора и выделить те виды взаимодействия родителей и ребенка, способы деятельности, которые способствуют развитию языковых навыков ребенка в таких условиях. Наблюдение за семьей и развитием языковых навыков ребенка осуществлялось с марта 2020 года по июль 2021 года во время пандемии COVID-19. Установлено, что постоянное пребывание в домашней обстановке способствовало созданию тесных взаимоотношений между родителями и их дочерью. Отмечается, что индонезийский – родной язык для семьи (Я1) и его развитие у ребенка началось раньше. Улучшение взаимодействия родителей и ребенка во время пандемии, постоянные контакты в процессе различных домашних занятий, чтение вслух, сторителлинг, ролевые игры и просмотр детских программ на YouTube-канале способствовали существенному продвижению в освоении ребенком английского языка (Я2). Изменения в языковых навыках девочки документировались, результаты языкового развития подвергались автоэтнографическому анализу, что позволило в конечном итоге расширить и углубить наше понимание родительской роли в ускорении развития английского языка у дошкольника, особенно за счет создания значимых действий.

**Ключевые слова:** языковое развитие ребенка, пандемия COVID-19, детско-родительские взаимоотношения, раннее детство, автоэтнография.

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## Introduction

Since the closure of educational institutions and the limitation of social activities, we have noticed a definite change in the atmosphere. Limited movement across the city boundaries made the family explore replacements. Reading becomes routine activity besides other household work. As we read some articles dealing with home literacy, it triggered us to build a home reading environment by creating reading activities that led to more intensive parent-kid interactions. Those are good ways to improve language development in vulnerable young children. As Lian [8] argued, in 21<sup>st</sup>-century learning, children should be provided access to various resources to gain their own needs and challenges when dealing with the texts. We also use digital tools like YouTube Kids as alternatives to books. It enhances literacy among children [12]. It also has been regarded as a source that provides extensive accents and pronunciation [5]. Furthermore, role-play and interaction-accompanied drawing are stimulating activities to improve children's linguistic, cognitive, and social skills [7] to develop children's communicative language and language development [1].

Parent-kid activities to support a child's language development are theoretically influenced by Bronfenbrenner's ecological theory [2] and more on learning in a social context [14]. Bronfenbrenner stated that more distal encouragements in societal institutions impact children's learning, but the proximal factors are the immediate family. Vygotsky [14] argued that children gain something to learn from their observation and interaction with the help of adults. In particular, as parents can identify children's current level of understanding, they support children to move forward gradually becoming independent learners. In addition, social interaction plays a vital role in language acquisition and development. Learning is embedded in how social contexts are constructed through interaction [4]. It entails socialization through language and socialization to practice language [11]. Mutual engagement and shared repertoire are central to language socialization in community practice [16].

The present study deserves our personal experience to reflect on our practice to know how

the family members play the role of a language catalyst in a bilingual setting English-Indonesian as an impact of social turn [4]. We understand that parents handled children during the pandemic. We must guide and help children face the shifting educational practice from in-person to distant instruction [9]. We must familiarize technology such as smartphones and laptops to facilitate children's educational needs. We also realized that a 4-year-old daughter could not stand alone. We must establish basic educational needs at home together. Besides, she also needs a social community to play and share.

Furthermore, we cannot deny that our daughter is still acquiring her first language. The language is imperative to facilitate her success in learning L2 [6]. We observed that her first language (L1) was at her age level. She had no difficulties interacting communicatively using simple L1 with parents, relatives, and friends. However, it is essential to emphasize that L2 is worth learning at her age since the pre-school's literacy activities use both L1 and L2. Therefore, we also support her language development in English (L2). In this case, both L1 and L2 are substantially exposed to provide a bilingual environment. However, this research focuses on how L2 is developed, and the research questions were as follows:

1. What kind of parent-kid activities are selected to expose children's L2 development during COVID-19?
2. How are parent-kid activities implemented in parent-kid interaction?
3. What English linguistic features does the kid acquire during the interaction?

## Method

In order to probe how a kid attained the second language development from various activities in small community practice, an autoethnography was employed. We use our experience as a source of data [15] in building home literacy that impacts a child's language acquisition. The research investigated a 4-year-old non-English speaker in acquiring English as her L2. She interacted extensively with her parents and siblings, who speak Indonesian (L1) and English (L2). The sibling was also involved in an online

school environment where L2 was partly used as a medium of instruction. Our daughter also attended toddler school, where L2 partially mediated learning instruction. The family members often used code switching and code mixing in our interaction. However, there was a tendency for kids to prefer English when they wanted to talk about school subjects. There were no rules on when we should use L1 or L2 in our interaction. It was entirely based on preferences.

### Data Collection

Data were collected through video recordings and observation. They were selected from personal documentation. They were transcribed and presented in Table 2 to Table 6 in the findings and discussion section. The duration of each recording varies, as shown in Table 1. The transcription process is done by converting the video into Mp3 files, which are then transcribed using *Mac Application Transcribe*. Stages of parent-kid interactions are displayed and described narratively in terms of vocabulary, clauses, and complex sentences.

## Finding and Discussion

### Home Literacy Setting

We focused on developing our daughter's English language acquisition through home literacy habits started from March 2020 to July 2021. First, we set our home as comfortable as possible to avoid boredom, especially for children. Setting home like a playground was the only option to make our daughter comfortable and motivated. Due to the limited room space, we reduced things in the living room, like the sofa set. After that, we could build a temporary tent in the living room to do reading and storytelling, watching while learning, and thinking aloud

while drawing. Thus, the living room becomes a kid's playground and reading corner.

### Parent-Kid Activities

Many literacy activities occurred in the living room. Three months after the lockdown, my daughter's English proficiency improved. Initially, she could only mention common English vocabulary like fruits, colors, foods, and kitchen utensils. Then, she uttered the words individually. Complex sentences were not spoken fluently. We were further motivated to focus on enriching her English language acquisition by providing more context for language use. Some activities that were taken into account include:

1. Reading a book. We provided books in different genres such as storybooks, science for kids, and other relevant genres for preschoolers. Besides that, multisensory and big books were also available to stimulate. We read English books to our daughter every night before sleeping.

2. Watching. Besides YouTube kids, we also subscribed to a TV providing appropriate channels for kids. However, she liked YouTube kids since the program was more flexible than other programs. Therefore, she could watch the most favorable program at the moment she wanted. Peppa Pig, and Ben & Holly, in my daughter's case, were the most effective for pronunciation.

3. Storytelling. We asked her to retell the story from the book or TV series she had previously had. This activity was intended to practice her speaking skills.

4. Think aloud while drawing. The parents did not deliberately design this activity. She always verbalized her thinking while drawing. This activity was considered beneficial to improve her speaking skills.

Table 1

### Data Recordings

No	Recording (R) Activities	Date of recording	Duration (minutes)
1	Building Vocabulary	18-04-2020	02:45
2	Building vocabulary	24-07-2020	00:53
3	Find and tell	23-09-2020	05:14
4	Reading a story-based picture	19-04-2021	00:56
5	Role-play	07-07-2021	03:52

5. Role-play. This activity was our daughter's favorite. She could do mutual-role play with her brother to create the story. The characters of the story were usually copied from cartoon movies. In addition, she also could do an individual role-play. She sometimes talked to herself; she posted herself as one particular character, and at the same time, she played another character. For example, when she played Peppa Pig cartoon characters, she could be *George* and *Peppa* or become *Daddy* and *Mommy Pig*. In this case, she was swamped with playing characters.

With those five significant activities, she became a chatterbox kid, and her fluency in speaking English was immediate. She needed little time to predict the vocabulary she should use when speaking. However, there was an issue in the initial stage of "learning." She could not distinguish which language should be used with her interlocutor. She easily mixed one language with another no matter what language the interlocutor used. At this moment, L1 and L2 were unidentified yet. She did not know a referent of the word "language." Regarding language control in bilingualism, she had not built a control mechanism required for bilinguals to use one language and not the other language [17]. However, in the other six months, she could monitor herself from her confusion and finally identify which language should be spoken with a particular interlocutor.

Another issue was stuttering-like behaviors. Our daughter spoke a bit hesitated to pronounce words. Her thinking moved ahead before her speech production ended, but her vocabulary recall was hampered. To take, for example.

"Daddy, I want you to help... p. I want you to help me lift this paper bag."

"Brother is taller than me, but daddy is tall... tall...ller taller than my brother."

However, stuttering seemed to be the normal condition in children's language acquisition. According to Mukalel [10], fragmenting and disjoint sentences form part of language disorder even in otherwise normal children. It is typical of children to produce sentences in broken, unrelated units of words that lack required fluency. Shenker [13] claims that stuttering is normal when children speak bilingually.

#### **Kid-parent Interaction**

As previously explained, the daughter was introduced in English with a common vocabulary. *The Show and Tell* strategy was used a lot to introduce new words. Her mother usually took this part. She took toys or other learning aids and asked her daughter to name them. Sometimes, she did an air-drawing to make the activity more engaging. The recording was transcribed below, and the participants were coded as *m* (mother) and *d* (daughter).

Table 2

#### **Building Vocabulary**

speakers	Exchanges
m	<i>Hi baby</i>
d	<i>Hi, mommies. I am hungry</i>
m	<i>Oh, are you hungry, OK? Because you are hungry, we are going to guess the name of the fruit, what fruits do you have. What is this?</i>
d	<i>Carrot(s)</i>
m	<i>What color is this?</i>
d	<i>Carrot mm orange</i>
m	<i>What is this?</i>
d	<i>Lemon</i>
m	<i>What color is this?</i>
d	<i>Yellow</i>



speakers	Exchanges
m	<i>And what is this?</i>
d	<i>Yellow</i>
m	<i>Mm... what is this?</i>
d	<i>Mm..jagungs (Giving L1 in L2 Accent)</i>
m	<i>OK... it's corn.</i>
d	<i>Corn</i>
m	<i>What color is this?</i>
d	<i>Yellow</i>
m	<i>OK. good... now we gonna have another fruit; what is this?</i>
d	<i>hmm...Fruit</i>
m	<i>Star fruit</i>
d	<i>Star fruit</i>
m	<i>Mm this one is yummy... what is this?</i>
d	<i>Mm... pineapple?</i>
m	<i>It's an apple... apple</i>
d	<i>Apple</i>
m	<i>What color is this?</i>
d	<i>Red</i>
m	<i>Tara...what is this?</i>
d	<i>Terong (Giving L1 in L2 accent)</i>
m	<i>Oh. it's an eggplant</i>
d	<i>Eggplant.</i>

Based on Table 2, most language productions were at the word level. Several names were not successfully mentioned. Nevertheless, the daughter preferred to answer directly in L1 rather than asking back to her mother. Uniquely, she remained to pronounce the word *jagung* (corn) and *terong* (eggplant) in the way L2 is pronounced. In this case, she had a positive attitude toward L2 by producing an L2 accent even though the word production was in L1. She kept trying to talk in L2 despite insufficient L2 vocabulary. Alternatively, her strategy to keep talking in L2 was answering the questions in another reference. Even though the question was distributed to denote things, she answered by denoting the color *yellow* rather than *jagung*. It indicated that she had high confidence in speaking L2. A positive attitude and confidence in learning L2 are vital to acquiring the language [3].

More engaging activities were applied to enrich her vocabulary mastery and to provide their contextual use, such as watching and reading

a book, still accompanied by parent-kid interaction. Two months later, we recorded dinner activity. There was an improvement in her language production, as shown in Table 3.

Table 3 informed that language production improved. There are some linguistic complexities prompted; this time, elicited questions were more complex than in the previous language production. The mother used the question word 'can,' and the daughter followed the instruction by naming all fruit correctly, some at sentence level. She did not answer shortly by saying yes or no but chose to elaborate on her answer. Another question was, *what do you eat?* Where she preferred to shorten the sentence pragmatically by saying *salad*. The complete answer could be, *I eat salad*. It indicated that she could monitor her speech production and utter appropriate answers to respond to the question.

Several other activities were further used in exposing L2. We did more reading and storytelling. The activity not only enlarged vocabulary

Table 3

**Building vocabulary**

Speakers	Exchange
m	<i>What do you eat, Echa?</i>
d	<i>Salad</i>
m	<i>Oh. salad... can you mention the name of the fruit?</i>
d	<i>Oh yeah... it's grape, kiwis, strawberry, and orange, and it's a yummy salad</i>
m	<i>OK. that's salad. Do you like it?</i>
d	<i>Yeah</i>

mastery but also practiced all language intake interactively. Telling a story was a powerful strategy to activate word databases in the memory and recall them into speech production. The following was the transcription of the video recording. The activity was about *Found and Tell*. We were in a dark bedroom. Our daughter used a torch to find out things that we asked.

Based on Table 4, some progress in producing sentences were made. The initiating interaction started to happen in this activity; our daughter started to restate the exchange as in the following sentence.

e.g., “oh. mommy ...you said I can found anything with light.”

Even though she did not use the verb *found* appropriately, she tried to conduct turn-taking to engage in the activity. She further raised a question to challenge her interlocutor to do more activity through requests, e.g., “*want you find*

*it more?*” Although the request expression was still disjoint and did not meet English grammar.

Some further activities were conducted in our daily activity. Diverging exposures to language had also been carried out. As our daughter proceeded with more vocabulary and sentences, she became more confident in practicing her L2. At this stage, she did think aloud while drawing and sing along while doing something. However, she was still confused with cultural diversity across linguistics such as *Halloween, Jolly time, and Thanksgiving* that she found on YouTube. Parents took the role of explaining these different cultures.

Her language production grew longer. The following activity was transcribing her storytelling from her picture strips. She made a series of pictures and then retold the story.

Table 5 shows her improvement in L2 acquisition. Even though the construction of sen-

Table 4

**Find and Tell**

Speakers	Exchanges
m	<i>It's dark, I can't see anything, can you find something over there?</i>
d	<i>Yes, that's laptop, pillow, dress-up place, I can see mommy. it's you, and bag and the door and the light, and the tembok, and the sky</i>
m	<i>Wall. It's not tembok...Oh. I've got something to see, I see the yellow bag, can you see it.</i>
d	<i>Bag? yellow?... oh, ya I found it</i>
m	<i>Whose bag is that?</i>
d	<i>You mommy</i>
m	<i>Can you see me right now?</i>
d	<i>Yaa I can see you... oh mommy... you said I can found anything with light</i>
m	<i>Yes, you can find anything with light</i>
d	<i>Want you find it more?</i>
m	<i>Oh I want you find something else</i>



Figure 1. Telling Series pictures

Table 5

### Telling a story

*Hi everyone, I want to tell you a story, once upon a time, there was a little princess and a king. They ride a unicorn and came to the show, and then they hungry, and they want to eat but they don't want to eat at the castle, just picked a magic picnic. and then they go to the magic car and go to the mountain and have a picnic at the mountain and then they're eat all the food, and drink all the water and then they are go to the magic car and go to the castle and then they're sleep because this is night time—the end.*

tences did not meet L2 grammar, this activity informed several enhancements, such as fluency. When she told a story, she took about 55 seconds. The most eminent of this activity was her achievement of gaining confidence to speak English alone even though she still mixed up the tenses between past and present.

Role-play was the most favorable for our daughter. She usually asked her brother to get involved in the play. She enjoyed playing role-play with their toys. For example, our daughter loved Peppa Pig cartoon characters. The following was a clip of the script from the role-play between son (s) and daughter (d).

Table 6

### The Role-play

Speakers	Exchange
d	<i>Uh... Peppa loves mommy pig's dinosaurs</i>
s	<i>Oya?</i>
d	<i>You know I'm just kidding</i>
s	<i>No, you aren't kidding, you're pretending to be kidding. Hi look at diplodocus</i>
d	<i>But Peppa is really kidding</i>
s	<i>OK. hi you're supposed to be here George (picking George character) You (George) need to be careful, always keep staying down here, so they (other toys) didn't fall down.</i>
d	<i>Suzie doesn't like dinosaurs. I like dinosaurs, but Suzie doesn't</i>
s	<i>No. Suzie likes all the things you like, if you want to swim here, go inside here, I will press this stuff quick...come on quick...</i>
d	<i>Hi I want to go inside</i>
s	<i>OK go ahead but I think you're a bit too big. I think it's too big for the sheep, I've never seen a sheep as that of big</i>
d	<i>No worry, I look (for another sheep) in here.</i>

Based on Table 6, the speech productions were getting complex and immediate. Nevertheless, it showed admirable progress in our daughter's language acquisition. Besides being able to turn-taking, she used the language contextually and pragmatically. Several idiomatic words were also acquired, and she could use them correctly: *chatterbox*, *starboard*, *opened minded*, *paddle to medal*. I (coded as f) wrote the moment when she used those idioms as the following notes:

- f *Hi Keisha, please tidy up your toys in the living room*
- d *Oh daddy. You are now such a chatterbox; be patient, please.*

In this context, parents need to notify which word can be appropriately addressed for older people in L1 culture. There was nothing wrong with the word choice in that excerpt, but we need to advise how to respond to such instructions. Finding also showed that our 4-year-old daughter achieved her communicative competence. It is portrayed from the capability to use grammatical constructions with target-like accuracy, the capability to use language in socially appropriate ways, the ability to take part in a coherent and cohesive conversation, and the ability to deal with communication breakdown.

Reading and watching were dominant activities to boost vocabulary intake. Kids acquire and imitate phonic and pronunciation from the authentic model. Kids also copied how to use vocabulary contextually from reading aloud and watching. However, language acquisition did not end at this point. We need to activate vocabulary stored in kids' memory. We need to drill our kids to recall the vocabulary through stimulation. Stimulation can be aided by providing community practice to a family member. As we were currently available at home because of COVID-19,

a teacher's family like us can do the same thing to treat preschoolers' kids in developing their language competence.

This present study reflected on our family practice with child language development. However, limitations were being concerned include; first, we did not discuss language development concisely following the sequence of second language acquisition in detail. Another aspect, pronunciation transcriptions, can also be analyzed so that the conclusion over the pronunciation acquisition in this reflexive study would not be overestimated. Second, a transcript of a conversation recording can be further analyzed using conversational analysis. Therefore, how children build their conversations in a minimal community can be uncovered. Thirdly, the data analysis such as coding, transcribing, and categorizing in this research was not assisted by technological support for qualitative data analysis.

### Conclusion

Based on the finding and discussion, this article showed that diverging language activities at home could be helpful for our children's language development, especially when speaking in a bilingual setting. YouTube Kids and books could provide extensive vocabulary exposure for children. Activities such as reading aloud, reading a story, watching an appropriate TV program, and accessing resources through technology could also enrich Children's vocabulary. However, vocabulary exposure is not enough to boost children's language use. Parents must build community practice at home to form literacy habits and instill the literacy outcome. Interactive speaking activities like Role-play, thinking aloud while drawing, and find & tell can be options for children to conduct such vocabulary reinforcement and oral communication practice.

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# The Answer to the Groundlessness of a New Way of Development of Giftedness

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The article substantiates the objection to V.S. Yurkevich to present the position towards understanding giftedness and developing creativity. The main objection is related to the thesis that the search activity “lies on the surface”, but has not been investigated by anyone. In addition, the definition of giftedness only in terms of the height of abilities, with the absence of manifestations of creativity emphasized by the author, separates giftedness from creativity. At the same time, the spread of understanding of giftedness as high abilities implied the possibility of manifestations of creativity. The studies of V.S. Rotenberg, V.V. Arshavsky the biological concept of search activity. The correlation of primitive forms of search activity, which ensure survival through adaptation, and higher forms of human behavior — search and research activities and creativity (phenomena of pre-adaptation), which are based on cognitive motivation, are substantiated. An indication of the presence of search activity in its various forms in the scientific concepts and practice of education is given.

**Keywords:** giftedness, creativity, search activity, research activity, cognitive motivation.

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Представлена критика позиции к пониманию одаренности и развитию творчества (В.С. Юркевич). Основное возражение авторов данной статьи связано с тезисом В.С. Юркевич о том, что поисковая активность «лежит на поверхности», но никем не исследовалась. Кроме того, обращается внимание на то, что определение одаренности только по высоте способностей при подчеркнутom отсутствии проявлений творчества отрывает одаренность от творчества. Вместе с тем авторы статьи подчеркивают, что распространение понимания одаренности как высоких способностей подразумевало возможность проявлений творчества. В качестве иллюстрации широко ведущихся исследований «поисковой активности» на протяжении последнего столетия приводятся исследования В.С. Ротенберга, В.В. Аршавского биологической концепции поисковой активности. Обосновывается соотнесение примитивных форм поисковой активности, обеспечивающих выживание через адаптацию, и высших форм поведения человека — поисково-исследовательской деятельности и творчества (феномены преадаптации), в основе которых лежит познавательная мотивация. Приводится указание на наличие поисковой активности в различных ее формах в научных концепциях и практике образования.

**Ключевые слова:** одаренность, творчество, поисковая активность, исследовательская деятельность, познавательная мотивация.

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The history of the term “giftedness” begins with the works of the sophists, who in the XIII century. explained the human ability to create as a gift from God — the only creator in the world. In the Renaissance, wage labor becomes widespread, which means that it becomes important for a person to have abilities that ensure the successful performance of labor. A person faces the task of consciously choosing a profession in accordance with his abilities.

High abilities ensured the success of labor and, accordingly, the wealth of a person. The first attempt to explain the gift of God as abilities given from birth, dates back to this time, and giftedness as the result of the manifestation of high abilities. This understanding of giftedness has been preserved for three centuries to the present day. It is based on the idea of natural talent and the need to study the facts of its loss [6]. So, at the beginning of the last century, L.S. Vy-

gotsky admits that “there is no “giftedness in general”, but there are various special predispositions for this or that activity” [6, p. 372]. This position was partly followed by B.M. Teplov [17]. The consideration of giftedness only as high abilities proceeded from the understanding that abilities ensure the successful mastery of activities in which giftedness is also manifested. Understanding creativity as the creation of a new, i.e., by product, also led to the equalization of giftedness and high abilities. When revealing the mechanism of creativity, within the framework of our understanding, it should be considered that giftedness is not limited to mastering activities.

The stability of such an understanding of giftedness is associated with the need to master the activity of a certain level of development of mental abilities. At the same time, we note that this is only one condition for the realization of creativity. Giftedness as an ability for creativity necessarily presupposes, in addition to intelligence, the dominance of cognitive motivation in the personality structure, which underlies commitment, love for one’s work, when it is impossible not to do what you are doing, just as it is impossible not to breathe.

In this regard, the definition of giftedness draws attention not just by the height of abilities, which is precisely the relevance of the problem, but an indication of the lack of manifestation of creativity in these subjects [20]. So, what about talent? For the first time, giftedness is separated from creativity. Prior to this, a fairly widespread understanding of giftedness, when it is reduced only to high abilities, implied the possibility of manifestations of creativity. In the article, V.S. Yurkevich: “Giftedness is a high level of development of a child’s general and/or special abilities, which largely influence the level of performance of activities corresponding to these abilities. In other words, a child’s giftedness is a **potential** (our bold — B.D.) characteristic of a child’s development. “Talent” in the article is considered as a system

of abilities and features of a person’s personality that has developed in an individual, manifested in his high creative achievements. Unlike giftedness, this is already an actual characteristic” [20, p. 130]. Naturally, V.S. Yurkevich can refer to the plenary report of V.I. Panov, who considers students with potential giftedness, but the report emphasizes that they do not belong to gifted children, but to the group potentially having such an opportunity with a certain development [11]. However, in the “Working concept of giftedness” the existence of the possibility of potential giftedness is mentioned only in order to prevent a certain tactlessness in relation to children [14].

In domestic psychology, the direct connection between giftedness and search and research activities has been scientifically substantiated. In this regard, attention is drawn to the provision in the article by V.S. Yurkevich about the presence of “search activity”, which “lies on the surface”, but has not been investigated by anyone. Because of this, the author puts it in the basis of a new methodological approach to the development of giftedness. The purpose of this approach is an attempt to solve the problem of the possibility of developing giftedness to the level of talent and embodiment in creative achievements, which does not occur in all children with high mental abilities.

Here V.S. Yurkevich also refers to the fact that “the psychological and pedagogical community faced this problem when analyzing the results of the famous California study, which began exactly one hundred years ago under the guidance of the famous psychologist Lewis Terman . In 1921, he collected more than one and a half thousand gifted children with high intellectual development (a “passing score” for IQ of at least 140 units). <...> The results were, on the one hand, quite expected, and on the other, stunning. As expected, most of the former gifted children became quite successful: high social status, good income, many different kinds



of achievements. At the same time, virtually none of this large sample became an outstanding scientist, engineer, or even businessman. At the same time, two teenagers who did not pass the IQ scores for this group, became Nobel Prize winners. It should be noted that the “termites” had a very high intelligence, the majority turned out to have a high level of self-regulation and a high sense of purpose” [20, p. 130]. Among these factors, the article also mentions the **cognitive need**, which, as emphasized by V.S. Yurkevich, considered by many as an important condition for the development of talent, was vividly represented in almost all these children. In the same series of enumeration of the motives of knowledge, V.S. Yurkevich mentions the **need for achievement**. Accordingly, the question is raised, why did their creative achievements not correspond to the level of their intellect and the expectations of their teachers and parents?

Due to the fact that this issue has been raised more than once in psychology, in order to understand the cause of this phenomenon, one has to turn to a special need, which, according to V.S. Yurkevich, it would seem, “lies on the surface”, but at the same time, almost no one has studied it as an independent need. In her opinion: “There are significant reasons to believe that a special search activity is a prerequisite for future creative achievements, which becomes an internal motivation for creative activity” [20, p. 130]. The article consistently refers to V. Stern, who proposed to measure giftedness with the help of “intelligence coefficient”, who said that the basis of giftedness is “openness to the world”, which requires special search activity; on Ch. Spearman, who substantiated the idea of a single “general factor” of human abilities, the psychological content of which can be the so-called mental energy; on N.S. Leites, who described in detail four gifted children whose most striking characteristic was mental activity.

If we turn to history, the biological concept of search activity was presented

in 1984 by V.S. Rotenberg and V.V. Arshavsky in the book “Search Activity and Adaptation” [15]. Search activity is understood by the authors quite broadly. An important point of the concept of search activity is its consideration from the biological side, first of all, as a general non-specific factor that determines the body resistance to stress, harmful effects and the development of many diseases in a variety of forms of behavior, i.e., provides adaptation. As criteria for determining search activity, in addition to the observed forms of behavior, physiological indicators are used (for example, the electrical activity of the brain, the content of catecholamines in the blood, etc.). So, to identify the search activity in animals, V.S. Rotenberg and V.V. Arshavsky propose to use such an objective indicator as the hippocampal theta rhythm — regular synchronous electrical activity, which is recorded when electrodes are immersed in a certain area of the brain. At the same time, the authors clarify that “the assessment of these same conditions in humans is immeasurably more difficult. Due to highly developed thinking and speech (the second signaling system), a significant proportion of mental activity is not reflected in the observed behavior. This includes planning, anticipation, imagining, mentally re-enacting the situation. <...> in a number of works it is stated that a person does not have a hippocampal theta rhythm at all” [15, p. 25—26].

Note, that the studies discussed in this book were conducted on animals. This fact is important from the point of view of attempts to directly transfer the results obtained in experiments on rats to humans.

As an outcome of the analysis of the results of their own experiments and experiments of other scientists on the direct stimulation in the brain of “zones of displeasure” (experimental stress) and “zones of pleasure”, the authors described various options for emotional reactions and behavior of rats. They suggested that such differ-

ent forms of behavior as flight, aggression and self-stimulation are united and provide their protective effect by search activity. "Search, or search activity" is understood as "an activity aimed at changing the situation, and in conditions when the subject cannot be sure of the results of his search behavior, when there is no definite forecast of the outcome of the whole situation" [15, p. 21]. Avoidance and aggression are instinctive forms of animal behavior, self-stimulation is an artificial form of behavior associated with electrical self-stimulation in the animal's brain of "pleasure" zones. None of these forms of behavior in this form is present in humans. Man is distinguished from animals by higher forms of behavior (higher mental functions), which are the result of the cultural and historical development of mankind [7].

The reason for the search activity of V.S. Rotenberg and V.V. Arshavsky called the impossibility of satisfying needs "due to previous well-developed behavioral skills" [15, p. 27].

Considering analogues of search activity in humans, V.S. Rotenberg and V.V. Arshavsky combine "anti-homeostatic" needs into a general need for search, referring the needs of growth, development and self-improvement, as well as the need for new information, new experiences, etc.

As a confirmation of the existence of search activity in humans, the authors cite a study of "super-situational activity" (herein after, SSA) by V.A. Petrovsky, which is referred to by prominent scientists, such as E.A. Klimov, A.G. Asmolov, T.Yu. Bazarov and others, as an indicator of creativity. This was facilitated by the fact that A.V. Petrovsky, as the editor of the Psychological Dictionary, introduced this term into the general rubric along with creativity, cognitive (intellectual) activity, "disinterested" risk, and excess activity: "Supra-situational activity is the ability of the subject to rise above the level of the requirements of the situation, to set goals that are excessive from the point

of view of the original task. Through SSA the subject overcomes external and internal restrictions ("barriers") of activity. SSA acts in the phenomena of creativity, cognitive (intellectual) activity, "disinterested" risk, excess activity" [8, p. 11].

In the experiment of V.A. Petrovsky, the participants of the experiment were presented with a number of tasks that were solved at different levels of difficulty at their own choice. These "self-initiated" actions are cited to emphasize his creative nature by virtue of his importance in the corresponding concept of creativity [1; 2; 3]. V. S. Yurkevich was familiar with the "Creative Field" method of revealing creativity and tried to create its analogy. In the experiment of V.A. Petrovsky, the subjects "should, by pressing a button, stop a moving toy train on a certain segment of the path between two points. The only condition of the task was not to let the train overshoot some specific point. The stop could have been made at any point up to this point. Naturally, the closer a train was to a critical point, the greater was the chance of failing to delay it, i.e., the higher was the possibility of failure. And only the number of failures according to the instructions was taken into account when assessing the performance of the task. In fact, the main task of the experiment was to establish what strategy of action the subjects would prefer — whether they would stop the train without any risk immediately when it appeared on a given section of the track, or they would try to stop it as close as possible to the critical point. The latter was quite common. Consequently, the subjects themselves set themselves more complex tasks than they were due, by no means being sure of their feasibility. In life, we are also sometimes surprised to meet people who are capable of committing unreasonably risky acts, when the possibility of winning in case of success seems to be disproportionately less significant compared to the possible consequences of failure. Such risk-takers are people with a very high need for search activity. "There is rapture in battle..." [15, p. 28—30].

“Genuine creativity stimulates itself and in itself is a reward for a person. <...> It is in creativity that the uniqueness of the need for search activity is manifested — its fundamental unsaturation. The need for search is the need for the process of constant change itself. From this follows its biological role for humans and animals: it is, as it were, the driving force behind the self-development of each individual” [15, p. 30—31].

It draws attention to the fact that the search for a solution to a complex problem that completely captured a person and the search for a lost thing are put in one row of search activity. Here the question arises: what is the difference between the search for a solution and the search for a thing? What is the general psychological meaning of solving a problem that requires the work of thinking, and searching for a lost thing, which is realized with the help of memory or by trial and error? The authors also include the creation of pseudo-problems as workarounds in case of achieving the main goal — the “super task” — to the search activity. The lack of effectiveness in this case can lead to the development of “achievement disease”, which becomes an incentive for search activity aimed at finding salvation, cure. Creativity is presented to the authors as “an ideal combination of search and positive emotions <...> when the search process itself gives pleasure and this pleasure reinforces and makes the subsequent search subjectively more enjoyable. It’s like a chain reaction, so a person with high creativity and creativity orientation is much less threatened by achievement diseases. <...> genuine creativity, stimulated by interest in the problem and focused on the object of study, on the creation of something new in any sphere of human activity, is the best guarantor against passive defensive behavior” [15, p. 41].

V.S. Rotenberg and V.V. Arshavsky emphasize the important role of cognitive motivation and the role of the achievement motive in the development of diseases: “If

the search is completely aimed at creation or achievement, and this is its main motives, then failures cannot become so traumatic that they stop the search. For true creativity, the search process itself constitutes pleasure, and a negative result only deepens knowledge about the subject and means that one direction of search must be replaced by another. Another thing is if, in the process of creative search, attention from the object of search activity (a work of art being created, a new scientific theory, etc.) imperceptibly switches to “oneself in search”. With such a change in attitude, a person needs to achieve real, obvious to everyone and momentary success, by all means, otherwise he begins to feel his inferiority and inferiority. The true interests of the cause and the very interest in the cause recede into the background, and the desire for self-affirmation through the results achieved comes to the fore. In this case, a negative search result acquires a psycho-traumatic meaning, undermines self-confidence, affects deep complexes, such as an inferiority complex, leads to an internal motivational conflict and a refusal to search. That is why the testament of K.S. Stanislavsky “Love art in yourself, not yourself in art” has, among other things, also a psychohygienic meaning. The correct orientation of creative search activity in the process of education is the best prevention of mental and psychosomatic disorders” [15, p. 56—57].

A person has a desire to know and understand, which is realized in research activity — specifically human activity. Search activity for animals serves as an adaptation mechanism (stress reduction). An evolutionary step in human development is pre-adaptation phenomena as the readiness for uncertainty and unpredictability of results, the most important of which is creativity, realized through thinking.

Let us pay attention to the fact that L.S. Vygotsky, discussing the issue of specific features of human behavior, writes: “M.Ya. Basov put forward an understand-

ing of man as an active figure in the environment, opposing his behavior to passive forms of adaptation characteristic of animals" [7, p. 121]. The whole variety of forms of behavior in the animal world is described by three natural ones, according to L.S. Vygotsky, steps in the development of behavior: instincts, skills, intellectual operations. In essence, a person is distinguished by higher cultural forms of behavior. "... it is a matter of breaking through the biological captivity of psychology into the realm of historical human psychology. <...> New step <...> means a change in the very type and direction in the development of behavior, it corresponds to the historical type of development of mankind. <...> Just as the instincts are not destroyed, but removed in conditioned reflexes, or skills continue to exist in an intellectual reaction, natural functions continue to exist within cultural ones" [7, p. 126]. Thus, search activity is a term that reflects primitive and artificial (observed under experimental conditions) forms of behavior. A specific human feature lies in higher forms of behavior. In relation to human behavior, it is important to talk about cognitive activity.

Already in the neonatal period, the leading need in the mental development of the child is the need for new impressions, which should "encourage the development of specifically human forms of the child's psyche. In other words, it should, through qualitative transformations, develop into complex social needs of a person, prompting him to assimilate the experience accumulated by mankind" [5, p. 191]. The need for external impressions develops into a cognitive need, which "induces the child's multifaceted "exploratory" activity and, on its basis, a cognitive need that pushes the child to enter wider and deeper into the environment and master it. <...> in infants, not only the cognitive activity itself changes progressively, but also the need for cognition develops, the satisfaction of which causes emotionally positive experiences" [5, p. 203].

Cognitive activity is represented by different forms, reflecting its development, at different ages. In its highest cultural, "ideal" form, cognitive activity appears as a research activity [12]. Thus, the search adaptive activity of animals is undergoing evolutionary development and is represented by trial and research activity in humans, a fundamentally different form of activity. At a new evolutionary turn, research activities, and even more so, creativity, are precisely such kinds of higher cultural forms of human behavior that are phenomena of pre-adaptation. In domestic psychology, works are well known that are devoted to trial-search forms of human behavior as its essential characteristics and trial-search action as a form of human development [18; 19], research behavior [13], research activity and research position [10], research and project activities [9], cognitive initiative [4], etc.

In accordance with science, the practice of teaching also worked. In support of his position, V.S. Yurkevich uses a quote from the book by V.A. Sukhomlinsky, but in the same work he writes: "Do not bring down an avalanche of knowledge on a child. <...> under an avalanche of knowledge, inquisitiveness and curiosity can be buried. Be able to open one thing in front of the child in the surrounding world but open it in such a way that a piece of life plays in front of the children with all the colors of the rainbow. Always leave something unsaid so that the child wants to return to what he has learned again and again [16, p. 38—39].

The above analysis of the transition by V.S. Yurkevich from the introduction of the method of "Developing discomfort" with the requirement for the development of creativity to present tasks of increased difficulty, which corresponded to the "Winner" scenario, to situations of misunderstanding, stimulates one's own activity (or in the words of V.S. Yurkevich — a search need), allows, in our opinion, consider it related to the widely implemented approach (search activity) described above.

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