

# PSYCHOLOGY IN RUSSIA: STATE OF THE ART

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## Editorial

The current issue of *Psychology in Russia: State of the Art* presents topical articles in clinical, cognitive, social, and developmental psychology.

The *clinical psychology* section opens with an article by Boris B. Velichkovsky, Irina F. Roschina, and Natalia D. Selezneva, who have investigated cognitive control and memory in healthy people with a genetic risk of Alzheimer's disease. Olga Yu. Shchelkova and Ekaterina B. Usmanova contribute to the development of on-copsychology by addressing quality of life and relation to disease in patients with bone sarcoma. The article by Vera A. Yakupova, Elena I. Zakharova, and Ajdar N. Abubakirov deals with another promising branch of clinical psychology — perinatal psychology applied to infertility treatment — and presents exploratory research on the mental state of women with an IVF pregnancy.

In the *cognitive psychology* section Elena V. Vorobyeva, Pavel N. Ermakov, and Oksana S. Saakyan discuss, on the basis of their empirical findings, the relationships between the achievement motivations and temperaments of psychology students with different lateral organization profiles. The article by Anastasiya K. Belolutskaya is a contribution to creativity studies; it deals with the concept of the “multidimensionality of thinking” and methods for its investigation.

The *social psychology* section is the most voluminous in this issue. Several articles address the problem of psychological security and stability from different viewpoints. Irina A. Baeva and Nina V. Bordovskaia have studied the psychological safety of the educational environment and the psychological well-being of Russian secondary school pupils and teachers. To facilitate desired changes in the Russian educational environment, one can refer to the work by Elena A. Shmeleva, Pavel A. Kislyakov, Larisa F. Luneva, and Ludmila D. Maltseva; it deals with psychological factors in the readiness of teachers to ensure social security in the educational environment. In secure settings young students are able to take risks and engage in innovation; the value-motivational structure of the innovativeness of these students is presented in the article by Olga V. Mikhailova.

Outside the school context, people's social and psychological stability may be assessed by migration processes, among other indicators. As an example, these

processes have been examined in the Pskov Region and are discussed in the article by Svetlana D. Gurieva, Svetlana N. Kostromina, Larisa A. Tsvetkova, and their colleagues. Finally, Olga G. Lopukhova has evaluated another significant factor that influences the psychological well-being of contemporary society, especially adolescents and young adults — the impact of gender images in commercials on self-consciousness.

The two articles in the *developmental psychology* section address the issue of problematic behavior in adolescents. Anatoly N. Alekhin, Natalya N. Koroleva, and Eugeniya I. Ostasheva describe certain semantic structures of world image as internal factors in the self-destructive behavior of today's teenagers. And Irina V. Vorobyeva, Olga V. Kruzhkova, and Marina S. Krivoshchekova explore the genesis of vandalism in ontogeny — from childhood to adolescence.

This issue closes with a book review by Natalya V. Grishina that shares her experience of reading A. I. Dontsov's recent book, *The Phenomenon of Envy*.

Yury P. Zinchenko,  
Lomonosov Moscow State University, Moscow, Russia

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## CLINICAL PSYCHOLOGY

### **Cognitive control and memory in healthy ApoE- $\epsilon$ 4 carriers with a family history of Alzheimer's disease**

Boris B. Velichkovsky<sup>a\*</sup>, Irina F. Roschina<sup>b</sup>, Natalia D. Selezneva<sup>b</sup>

<sup>a</sup>*Lomonosov Moscow State University, Moscow, Russia*

<sup>b</sup>*Research Center for Mental Health, Moscow, Russia*

\*Corresponding author. E-mail: velitchk@mail.ru

A major risk factor for late-onset Alzheimer's type dementia (DAT) is the carriage of the  $\epsilon$ 4 allele of the apolipoprotein E (ApoE) gene. Identifying cognitive deficits in healthy ApoE- $\epsilon$ 4 carriers is valuable in order to develop interventions to prevent them from developing DAT. Existing evidence about cognitive deficits in the domains of episodic memory and cognitive control specific to ApoE- $\epsilon$ 4 is contradictory.

The objective of our research was to assess episodic memory and cognitive control in healthy ApoE- $\epsilon$ 4 carriers.

Cognitively healthy ApoE- $\epsilon$ 4 carriers (13  $\epsilon$ 4/ $\epsilon$ 4 heterozygotes) and noncarriers (22  $\epsilon$ 3/ $\epsilon$ 3 homozygotes), who were matched on age and family history of DAT, were compared on episodic-memory and cognitive-control tasks. Episodic-memory tasks were verbal and visual recognition tasks with a systematic variation of distractor-to-target similarity. Executive functions were assessed by a task for updating working memory, an inhibition task, and a switching task. Working-memory capacity was also assessed.

The results showed that executive functions were generally not impaired in the carriers, but carriers showed a specific increase in accuracy-related switch costs. Working-memory capacity was not reduced in the carriers. In the domain of episodic memory, the carriers were found to make more errors with phonetic distractors in the verbal episodic-memory task. They also tended to make more errors with visually dissimilar distractors in the visual episodic-memory task.

The results are indicative of an episodic-memory deficit specific to the carriage of ApoE- $\epsilon$ 4. This deficit may be driven either by deficits in storage or by deficits in the encoding of the to-be-remembered material. Contradictory results concerning the presence of an episodic-memory deficit obtained in previous studies may stem from small effect sizes, the use of specific materials, and the employment of attention-intensive encoding strategies. The carriers also showed a switching deficit that possibly is related to difficulty in retrieving task rules from episodic memory. Existing empirical contradictions concerning the presence of an executive deficit in carriers may in part depend on the extent

to which tasks used to assess an executive deficit draw on the switching function. In this study, there was no general executive deficit in the carriers of ApoE-ε4.

**Keywords:** apolipoprotein E, Alzheimer's type dementia, episodic memory, cognitive control, executive functions, working memory, attention, task switching

## **Introduction**

Dementia of the Alzheimer's type (DAT) is a progressive neurodegenerative disease that severely affects the quality of life of patients and their relatives. As the general population becomes older in the developed countries, more people are prone to the development of DAT. This increase in patients suffering from DAT places heavy costs on medical systems. It also places heavy costs on the patient's relatives in terms of both money and emotional involvement. It is therefore important not only to continue to search for effective treatment of already fully developed DAT but also to look for early indicators of DAT that would allow the application of preventive interventions. In this respect it may be valuable to consider the various risk factors that increase the probability of developing DAT.

A major risk factor for late-onset DAT is carriage of the ε4 allele of the apolipoprotein E (ApoE) gene (Raber, Huang, & Ashford, 2005). The carriage of this allele is associated with a highly increased probability (four- to ten-fold, according to various estimates) of DAT. As DAT is characterized by various cognitive deficits, finding cognitive deficits in healthy carriers of ApoE-ε4 could help in the development of interventions that could prevent their cognitive decline. Research on cognitive deficits in healthy ApoE-ε4 carriers has so far brought contradictory results, with some studies but not others finding such deficits (Wisdom, Callahan, & Hawkins, 2011). Two cognitive domains of specific importance for the study of possible accelerated cognitive decline in ApoE-ε4 carriers are episodic memory and cognitive control. The assessment of the integrity of episodic memory is important because episodic-memory impairments are a hallmark of DAT and Alzheimer's disease. Cognitive control is important because of the enormous role frontally mediated executive functions play in the regulation of behavior and because their degradation during age-related cognitive decline may be disproportionately large.

It has been shown that carriers of the ApoE-ε4 allele may exhibit some cognitive shortcomings in the domain of episodic memory (De Blasi et al., 2009). However, it has also been shown that episodic memory may be not affected by the carriage of ApoE-ε4 (Quintas et al., 2014). Better episodic memory in young, healthy carriers compared with noncarriers has also been reported (Mondadori et al., 2007). There is evidence that cognitive control may be negatively affected in carriers (Allain, Etcharry-Bouyx, & Verny, 2013). However, there is also evidence that ApoE-ε4 carriers show no deficits in cognitive control compared with noncarriers (Bondi, Salmon, Galasko, Thomas, & Thal, 1999) or even outperform controls in cognitive-control tasks (Marchant, King, Tabet, & Rusted, 2010). Contradictory conclusions about the presence and nature of possible cognitive deficits in the domains of episodic memory and cognitive control made by previous studies warrant the accumulation of additional empirical evidence about the functioning of these cognitive domains in healthy ApoE-ε4 carriers.

The aim of this study was to assess possible cognitive deficits in episodic memory and cognitive control in a sample of healthy ApoE- $\epsilon$ 4 carriers and in a control sample of ApoE- $\epsilon$ 3 carriers. The samples were matched on age and family history of DAT, as these two factors are important contributors to the risk of DAT. Episodic memory was assessed by a verbal and a visual recognition task. Typically, when assessing episodic memory in ApoE- $\epsilon$ 4 carriers, recall tasks are used. Our use of a recognition task was motivated by the fact that recognition is usually easier than recall and thus possible differences in recognition performance would be indicative of a pronounced difference in memory abilities between carriers and noncarriers. Our study also differs from previous studies through a systematic variation of distractor-to-target similarity, which allows for a more precise analysis of a possible episodic-memory deficit in the carriers than simply stating the presence of such a deficit. The present study also extends previous studies of memory in ApoE- $\epsilon$ 4 carriers by including a measure of working-memory capacity as working memory is important for daily functioning and is negatively affected by progressing age. The present study stands out from other studies of cognitive functioning in ApoE- $\epsilon$ 4 carriers because it for the first time assesses all three basic executive functions — inhibition, switching, and working-memory updating — identified by Miyake and colleagues (2000).

## **Method**

### ***Subjects***

The sample of ApoE- $\epsilon$ 4 carriers consisted of 13 subjects (9 female and 4 male) carrying one ApoE- $\epsilon$ 4 allele and one ApoE- $\epsilon$ 3 allele. The control sample of ApoE- $\epsilon$ 3 homozygotes consisted of 22 subjects (17 female and 5 male). The groups did not differ significantly in age (45.5 years vs. 47.5 years,  $p>0.5$ ). All subjects had a close relative (a parent, a sister, or a brother) diagnosed with DAT. The subjects were recruited among relatives of patients of the Mental Health Research Center of the Russian Academy of Medical Sciences (Moscow). All subjects were not demented as revealed by a clinical interview and by performance on Luria's neuropsychological test battery and the Mini Mental State Examination (scores over 25). Subjects gave informed consent to participate in the study according to the ethical regulations of the Center.

### ***Tasks***

Four executive tasks and two episodic-memory tasks were given to the subjects. The cognitive-control tasks spanning three executive functions — inhibition, switching, and working-memory updating — were adapted from Miyake et al. (2000). A complex working-memory span task — the operation-span task — was also used to assess executive functioning. Complex working-memory tasks that combine storage of information with processing of a secondary cognitive task are a de facto standard (Conway et al., 2005) in assessing working-memory capacity, which spans the boundary between memory and cognitive-control domains. The episodic-memory tasks were typical recognition memory tasks used in numerous experi-

ments and included a verbal-memory task and a visual-memory task. The details on each task are given below.

*Antisaccade task.* The antisaccade task was adapted from Miyake et al. (2000) and was used to assess inhibition. A fixation cross was presented in the center of the screen for 500 ms. A rectangle serving as a distractor was presented for 225 ms in the left or right half of the screen (side randomly selected). After that, an arrow pointing left or right was presented in the opposite half of the screen for 150 ms. The task of the subjects was to indicate the direction of the arrow with a button press. They were explicitly instructed not to look at the distractor. There were 4 training trials and 100 test trials with all combinations of arrow location and direction presented equally, often in a truly random sequence.

*Switching task.* The switching task was adapted from Miyake et al. (2000) and was used to assess the effectiveness of rapid switching between tasks. The screen was divided into four quadrants. A letter-digit pair was subsequently presented in each quadrant starting with the upper right quadrant. If the letter-digit pair was presented in the upper right or lower left quadrant, the subject had to indicate whether the letter was a consonant or a vowel with a button press. When the letter-digit pair was presented in the other two quadrants, the task was to identify whether the digit was even or odd. The subjects had thus to alternate between a letter-categorization task and a digit-categorization task. Each letter-digit pair was presented for at most 5000 ms. There were 8 training trials and 100 test trials.

*N-back task.* The n-back task is commonly used to assess the updating of working memory (Owen, McMillan, Laird, & Bullmore, 2005). A pseudorandom sequence of digits was presented to the subjects, who had to indicate whether the presented digit matched the digit presented two trials before (2-back). Each digit was presented for 500 ms, and a response was awaited for at most 2500 ms. There was a training sequence of 10 digits with 3 critical events, and a test sequence of 62 digits with 15 critical events.

*Operation span.* This task is used to test working memory function (Conway et al., 2005). The subjects were presented with a letter to be remembered and an arithmetic equation to be verified. After a set of letter-equation pairs was presented, the letters were to be recalled in the correct order. The set sizes varied from 2 to 6. Working-memory capacity was estimated to be the length of the largest sequence of letters that could be reproduced without errors in the correct order. Letter-equation pairs were presented for 6000 ms.

*Verbal episodic-memory task.* The task was modeled after the Rey Auditory-Verbal Learning Test. A list of 14 words had to be memorized. The memorization phase preceded the presentation of the executive-function tasks. The list was presented three times with each word presented for 4000 ms and pronounced aloud by the subject. After the subject performed the executive-function tasks, a recognition test was given. In the recognition test, the 14 "old" words were intermixed with distractor words. Half the words were phonetically similar to the studied words, and the other half were semantically similar to them. Each distractor was similar to a different word from the studied list.

*Visual episodic-memory task.* This task was adapted from the Visual Reproduction I and II subtests of the Wechsler Memory Scale IV. Five abstract geometrical drawings had to be memorized. The drawings were presented for 6000 ms each be-



fore the performance of the executive-function tasks. A recognition test was given after the memorization test for the visual-memory task. In the recognition test, the studied drawings were mixed with 5 “close” and 5 “far” distractors. Close distractors were drawings that differed from the studied drawings only in small detail. Far distractors resembled the studied drawing only distantly.

### Data analysis

The performance of the  $\epsilon 4$ -carrier group and the  $\epsilon 3$ -carrier group on the experimental tasks was compared with the  $t$ -test for independent samples. All tests were two-sided. A significance level of 0.05 was used. Results significant at 0.1 were also considered given the exploratory nature of this study.

### Results

Descriptive statistics for all tasks are presented in Table 1. The results for the cognitive-control tasks are reported first, followed by the results for the episodic-memory tasks.

**Table 1.** Descriptive statistics for cognitive-performance indicators in the group of ApoE- $\epsilon 4$  carriers ( $\epsilon 4$ ) and noncarriers ( $\epsilon 3$ )

Task	ApoE status				<i>p</i> level
	$\epsilon 4$ (N=13)		$\epsilon 3$ (N=22)		
	M	SD	M	SD	
<i>Antisaccade</i>					
RT	658	182	664	125	$p > 0.1$
Accuracy	75.1	16.5	76.2	16.2	$p > 0.1$
<i>Task switching</i>					
No switch RT	1139	269	1222	330	$p > 0.1$
No switch accuracy	93.3	7.6	90.5	13.9	$p > 0.1$
Switch RT	1628	500	1730	380	$p > 0.1$
Switch accuracy	87.8	9.5	89.3	12.6	$p > 0.1$
Switch cost, RT	489	269	508	292	$p > 0.1$
Switch cost, accuracy	5.5	4.6	1.2	5.9	$p < 0.05$
N-back	88.8	6.2	88.7	5.8	$p > 0.1$
Operation span	3.5	0.53	3.8	0.74	$p > 0.1$
<i>Verbal memory</i>					
Accuracy, old	99.0	2.5	99.4	2.0	$p > 0.1$
Accuracy, semantic	97.8	5.4	96.1	6.5	$p > 0.1$
Accuracy, phonetic	93.4	9.4	98.1	5.0	$p < 0.1$
<i>Visual memory</i>					
Accuracy, old	95.0	12.6	94.6	12.9	$p > 0.1$
Accuracy, close	61.5	23.5	67.4	20.3	$p > 0.1$
Accuracy, far	72.7	23.4	83.1	14.4	$p > 0.1$

Note. RT = reaction time.



There were no significant differences between the carrier and the noncarrier group on the antisaccade task (RT,  $t(33)=0.12$ ,  $p>0.1$ ; accuracy,  $t(33)=2.0$ ,  $p>0.1$ ). For the switching task, the groups did not differ either in the no switch trials (RT,  $t(33)=0.77$ ,  $p>0.1$ ; accuracy,  $t(33)=-0.67$ ,  $p>0.1$ ) or in the switch trials (RT,  $t(33)=0.68$ ,  $p>0.1$ ; accuracy,  $t(33)=0.36$ ,  $p>0.1$ ). Differences in the switch costs (that is, differences in performance in the no switch and switch trials) were analyzed, as switch costs are the main indicator of switching performance in the task-switching studies. The groups did not differ in RT-related switch costs ( $t(33)=0.19$ ,  $p>0.1$ ). Accuracy-related switch costs were significantly higher in the carrier group ( $t(33)=-2.2$ ,  $p<0.05$ ). The carriers made 5.5% more errors in the switch trials than in the no switch trials. The noncarriers made only 1.2% more errors in the switch trials.

Accuracy in the working-memory updating task, n-back, was not different in the two groups ( $t(33)=-0.06$ ,  $p>0.1$ ). The groups also did not differ in working-memory (operation) spans ( $t(33)=1.06$ ,  $p>0.1$ ).

For the verbal episodic memory, the groups did not differ in correct recognition of the “old” words ( $t(33)=0.55$ ,  $p>0.1$ ) and in correct rejections of semantic distractors ( $t(33)=-0.79$ ,  $p>0.1$ ). There was a strong numeric tendency for the carriers to make more false recognitions of phonetic distractors. Their false-alarm rate in this case was 6.6% vs. 1.9% for the noncarriers. This difference was marginally significant ( $t(33)=1.9$ ,  $p<0.1$ ).

For the visual episodic-memory task, the groups did not differ in correct recognition of the old drawings ( $t(33)=-0.1$ ,  $p>0.1$ ) and in correct rejections of the visually close distractors ( $t(33)=0.76$ ,  $p>0.1$ ). There was a large numeric tendency for the carriers to make more false recognitions of visually far distractors. The carriers made 27.7% errors in this case, while the noncarriers made only 16.9% errors. This difference, however, missed being marginally significant ( $t(33)=1.63$ ,  $p=0.11$ ).

## Discussion

In this study we assessed possible cognitive deficits in a group of healthy ApoE-ε4 carriers and noncarriers with a family history of DAT. For the investigation the domains of episodic memory and executive functions were chosen as these are often affected in DAT — a condition closely associated with the presence of the ApoE-ε4 allele. The rationale for this study was to try to find cognitive indicators that would distinguish carriers from noncarriers. Such indicators can be very valuable for the early identification of persons with an increased risk of developing DAT. On this basis preventive measures can be applied to reduce the severity of the developing DAT.

The results obtained show that the carriers seemed to have no general executive deficit. The ε4 carriers performed well on the attention-demanding antisaccade task, thus showing no deficit in inhibition — a fundamental executive function. They also performed well on the n-back task, thus showing no deficit in another basic executive function — working-memory updating. They had complex working-memory spans statistically indistinguishable from those of the noncarriers. One notable exception was the switching task. The carriers had larger error-related switch costs. Increasing switch costs are characteristic of nonpathological cognitive aging. Such a specific increase in switch costs may be indicative of normal aging in

the carriers, whose rate exceeded that of the noncarriers. These results may resolve the apparent empirical contradiction revealed by previous studies regarding the presence of executive-function deficits in the carriers of ApoE- $\epsilon$ 4. The ambiguity of results concerning executive deficits in the carriers may stem from the fact that different studies employ different executive tasks. If a task employed requires extensive use of switching, then an executive deficit may be reported. If a task does not depend on the switching function, an executive deficit may not be found.

The overall performance of the episodic-memory tasks was also almost indistinguishable between the carriers and the noncarriers. However, the carriers made more errors with phonetic distractors in the verbal episodic-memory task. Long-term memory is believed to be based on semantic coding, while confusion with phonetically similar material is more typical for short-term memory (Conrad, 1964). One explanation for the observed effect is that carriers use phonological coding in long-term memory instead of semantic coding. Semantic memory is known to be impaired in Alzheimer's disease (Rogers & Friedman, 2008). This impairment may be grounded in the semantic network's being damaged in Alzheimer's disease (Flanagan, Copland, Chenery, Byrne, & Angwin, 2013). Semantic coding may not be reliable in carriers, and thus only the phonological representations of the studied words are used to support performance of the memory task.

Another explanation for the obtained effect is that the carriers encoded not the semantic but the phonetic features of the to-be-remembered word ("shallow encoding"). In the recognition phase of the test, semantic distractors were correctly rejected by the carriers because they differ from the target words phonetically. Phonetic distractors were not rejected because they were confused with the phonetic trace left in long-term memory. The noncarriers fully stored a semantic representation and thus had no difficulty in rejecting phonetic distractors that were also semantically different from the target words. Therefore, our data indicate that carriers may not have a problem with retention of material but they may have a problem with deep processing and encoding of the studied words. This, in turn, indicates that possible episodic-memory problems in carriers are rooted in attention deficits.

The results obtained in the visual episodic-memory task give some support to this explanation. Although statistically not significant, the carriers' false-alarm rate for visually far distractors was substantially higher than that of the noncarriers. Far distractors resemble the target items very roughly, and it should not be hard to distinguish them from the targets unless only a vague trace of the target is left in memory. This is exactly what seems to have been the case with the carriers. The noncarrier group had fewer problems with correctly rejecting this type of distractor. Both groups had considerable difficulty correctly rejecting close distractors, which differ from the targets only in fine detail. The results concerning episodic memory obtained in this study help to resolve the contradictions concerning the presence of an episodic-memory deficit revealed by previous studies. It shows that a possible episodic-memory deficit in carriers is small in size (and thus requires large samples to be detected), occurs only with some types of distractors, and may be dependent on the employment of attention-intensive encoding. These conditions make it probable that an episodic-memory deficit remains undiscovered in many studies (and may even be reversed if, for example, elaborated encoding strategies are consciously employed by carriers).

The failures in episodic memory in the ApoE-ε4 carriers described above contrast with the complete absence of failures in their working memory. Neither updating of working memory during the performance of the n-back task nor the combined storage and processing during the performance of the operation-span task was impaired in the carriers. This result indicates that only long-term memory, not memory in general, is negatively affected by the presence of the ApoE-ε4 allele. Current memory theories usually present long-term memory and working memory as separate systems with different psychological mechanisms underlying each. Long-term episodic memory and working memory are also usually thought of as being supported by different neuroanatomical systems, with episodic memory associated with medial-temporal hemispheric structures and working memory being prefrontally mediated. This distinction of long-term and working memory is thus evident in the distinct effects of the ApoE-ε4 presence on them.

It is, however, possible that working-memory functions are jointly realized through long-term and short-term memory mechanisms (Unsworth & Engle, 2007). This is the case when the amount of the information to be held in working memory exceeds its strongly limited capacity (that is, if more than 3 or 4 items are to be held). As storage requirements clearly exceed these limitations in the operation-span task, it is interesting to see why this does not lead to a breakdown in operation-span performance in carriers. It may be that the reduced effectiveness of long-term memory in carriers is compensated for by the increased effectiveness of their primary memory, which allows for immediate storage and speeded access to the retained items. Such compensation may be shown, for example, by demonstrating that there is a reduced primacy effect during working memory in carriers compared with noncarriers.

Following this line of reasoning we can suggest that the carriers have more-developed executive functions than the noncarriers. This suggestion is permissible in the light of our findings that no general executive deficit was found in the carriers. However, task-switching effectiveness was significantly reduced in the carriers, a finding that disproves the idea of a general executive advantage in the carriers. Task switching is an important executive function that has generated a lot of research. The main conclusion from these studies is that task switching involves an active executive reconfiguration process. Efficiency of task switching decreases because of a number of factors, one of which is aging (Kray & Lindenberger, 2000). It has also been shown that switching efficiency is reduced in people with beginning DAT, contrary to other indicators of executive functioning (Fernandez-Duques & Black, 2008). Other studies also show that task-switching performance is a promising indicator of early-stage DAT (Hutchinson, Balota, & Duchek, 2010) and pathological cognitive aging in general (Duchek et al., 2009). Thus, an increased cost of task switching may be associated with cognitive deficits during DAT, and its association with the presence of the ApoE-ε4 allele may also not be incidental.

Although task switching is usually understood as an executive function clearly separated from long-term memory, the actual deficit underlying task-switching impairments in carriers may be closely related to memory. DeJong (2000) hypothesized that an important aspect of task switching is loading the rules of the new task into working memory from long-term memory. Accordingly, there are two types of task-switching trials. In some trials, access to long-term memory and retrieval of rules

is successful, and there is no extra slowing of reaction time. In other trials, memory access fails and new task rules cannot be activated immediately; this failure requires repeated memory access. As a result, reaction times become longer. Such a mixed distribution of reaction times produces the overall increase in reaction times that is a characteristic of task-switching trials. Similar inferences can be drawn about the emergence of switch costs measured with accuracy data. Thus, an apparent executive deficit in carriers may turn out to be a long-term memory deficit.

## Conclusion

Episodic memory and executive functions were assessed in a sample of cognitively healthy ApoE- $\epsilon$ 4 carriers and noncarriers with a family history of Alzheimer's disease. The carriers were found to make more errors with phonetic distractors in a verbal episodic-memory task. They were also found to make more errors with visually dissimilar distractors in a visual episodic-memory task. These results are indicative of a general episodic-memory deficit driven either by deficits in storage or by deficits in encoding the to-be-remembered material. Contradictory results concerning the presence of an episodic-memory deficit obtained in previous studies may stem from small effect sizes, the use of specific materials, and the employment of attention-intensive encoding strategies. In our research, executive functions were generally not impaired, a finding that casts doubt on the assumption that there is an executive deficit in ApoE- $\epsilon$ 4 carriers. However, task-switching performance was impaired in the carriers. Existing empirical contradictions concerning the presence of an executive deficit in carriers may in part depend on the extent to which tasks used to assess an executive deficit draw on the switching function. The switching deficit may also be related to difficulty in retrieving task rules from episodic memory. Deficits in episodic memory and task switching could be valuable indicators of early cognitive deficits in healthy ApoE- $\epsilon$ 4 carriers.

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## The mental state of women with an IVF pregnancy

Vera A. Yakupova<sup>a\*</sup>, Elena I. Zakharova<sup>a</sup>, Ajdar N. Abubakirov<sup>b</sup>

<sup>a</sup>*Lomonosov Moscow State University, Moscow, Russia*

<sup>b</sup>*Kulakov Scientific Center for Obstetrics, Gynecology and Perinatology, Moscow, Russia*

\*Corresponding author. E-mail: vera.a.romanova@gmail.com

An in vitro fertilization (IVF) pregnancy is stressful both financially and emotionally. Patients undergoing an IVF procedure often have already had infertility and reproductive losses. Pregnancy through IVF involves the increased risk of various medical complications. Experts around the world are actively engaged in studying the specifics of the mental state of participants in IVF programs during pregnancy. Of critical importance is the issue of providing psychological support for couples who are preparing for and who have received an IVF pregnancy.

The aim of our research was to investigate the mental state of women participating in an IVF program. The study involved 224 pregnant women in the second and third trimesters: 62 women with an IVF pregnancy and 162 women who conceived naturally. The study took place at the Kulakov Scientific Center for Obstetrics, Gynecology, and Perinatology in Moscow, Russia. All the study participants had encountered medical complications during their pregnancy. No significant differences were identified in mental well-being in the two groups; this finding suggests that somatic complications during pregnancy are a general source of anxiety regardless of the reason for their occurrence. The second and third trimesters of pregnancy register increased anxiety levels associated with experiences of reproductive loss and the presence of physical problems. The main resources of a woman's personality that contribute to her self-confidence and mental stability are her professional employment and flexible behavior.

**Keywords:** IVF, psychology of pregnancy, mental state, motherhood

### Introduction

IVF is becoming increasingly widespread, and many infertile couples are successfully becoming parents through its use. However, participation in an IVF program requires significant physical and psychological inputs. Preparing for IVF includes numerous surveys and intensive hormone therapy. Chances of success are initially about 50% (Gardanova, 2008; Ola & Ledger, 2005); with age the likelihood of pregnancy is reduced. Pregnancy is accompanied by constant risks because with IVF the chance of miscarriage, premature birth, and various somatic complications



is higher than in a normal pregnancy (Lebedko, 2013; Sidelnikova, Khodjaeva, Strelchenko, Kiruschenkov, 2005).

We can confidently assert that the state of women with an IVF pregnancy is stressful. This stress is noteworthy because the mental state of a woman in pregnancy has a significant effect on its course and outcome (Zakharova & Chuvaeva, 2011). Gardanova (2008) documents a high incidence of anxiety disorders among women preparing for IVF. Peak alarm occurs when they are taking a pregnancy test after IVF.

Swedish psychologists have studied women in the first trimester of their pregnancy and have found that the IVF group had a significantly higher level of anxiety associated with the risk of losing a child than the group with spontaneous conception. A long period of infertility contributes to higher anxiety (Hjelmstedt, Widstro, Wramsby, Matthiesen, & Collins, 2003). There is evidence that this increased level of anxiety persists throughout the period of pregnancy. A study by Australian psychologists found that IVF women in their third trimester of pregnancy demonstrated higher levels of anxiety associated with the child's health and life than women who conceived naturally (McMahon, Ungerer, Beaurepaire, Tennant, & Saunders, 1997). A Greek study of the coping strategies of women with an IVF pregnancy revealed a positive relationship between a problem-focused strategy and a favorable outcome for the IVF procedure (Gourounti et al., 2012). It also showed a heightened sense of lack of control over their own life, a feeling that increased with the number of IVF attempts.

So, when discussing the nature of anxiety among women pregnant after IVF, it can be assumed that the main source is their concern for their child's health and a favorable outcome for their pregnancy. One of the most important factors leading to increased anxiety is, in our opinion, the occurrence of physical complications during pregnancy. Because the probability of complications is higher among IVF women than among women who conceive naturally, we sought to equalize the sample studied according to this parameter. We selected women who conceived naturally and were in the hospital because of their physical problems to participate in the study as a comparison group. Thus, all the study participants, both those with IVF and those with natural conception, encountered medical complications during their pregnancy.

## **The Study**

### ***Objectives***

The basic objective of the study was to compare the mental state of women with an IVF pregnancy and that of women who conceived naturally. In addition, we conducted an analysis of the possible causes of increased anxiety and the women's resources for coping with anxiety.

### ***Techniques***

We chose the Eysenck Personality Questionnaire (self-assessment of mental states) (Raigorodskiy, 2001) as a tool for assessing the mental state of pregnant women. The questionnaire consists of 4 scales: Anxiety, Frustration, Aggression, and Rigid-



ity. We also used the Emotional State scale of the Filippova questionnaire Style of Pregnancy Experiences (Filippova, 2002). The questionnaire suggests 6 styles of pregnancy experience: adequate, ambivalent, indifferent, euphoric, anxious, and resentful. For increased insight into pregnant women's psychology and possible sources of their anxiety we used the projective drawing technique Drawing of My Child and Me (Zakharova, 2014), in which each participant was asked to draw a picture of herself and her child.

### **Sample**

The study was conducted at the Kulakov Center for Obstetrics, Gynecology, and Perinatology. The study involved 224 women in the second and third trimester of pregnancy at the Center's inpatient clinic, 162 women who had become pregnant with natural conception and 62 women who had become pregnant after IVF. All the study participants had encountered various somatic difficulties during their pregnancy and, as a result, found themselves in the clinic under medical supervision. The timing of the survey (the second and third trimester of pregnancy) was based on the fact that a woman's anxiety about continuing her pregnancy decreases during this period as she adapts to her condition, becomes aware of the change in her life, and feels her child's movements. The age of the women with natural conception (NC) ranged from 19 to 42; the average age was 30.8. The age of the IVF women varied from 24 to 49; the average age was 33.2. In the NC group 32.4% (52 women) were not employed, 2.4% (4 women) were partially employed, and 65.2% (106 women) worked full-time. 1 of the unemployed women in this group quit her job after getting pregnant. The IVF group included 37.1% (23 women) unemployed, 1.6% (2 women) partially employed, and 61.3% (37 women) employed full-time. Of the unemployed women 39% (9) left work as soon as they conceived, significantly more than in the NC group (Fisher's exact test 4.192). In the NC group 62.3% (101 women) were nulliparous and 37.7% (61 women) were already mothers. In the IVF group 80.6% (50 women) were nulliparous and 19.4% (12 women) were already mothers.

Of the study participants 31.6% did not provide any information about reproductive losses prior to the current pregnancy. In the NC group 48 women had experienced reproductive losses, 67 had no previous reproductive losses. In the IVF group 16 women had had a reproductive loss, while 22 had none.

The average waiting time for pregnancy in the NC group was 28 months, and it was 71 months in the IVF group.

### **Results**

According to the data obtained using the Eysenck Personality Questionnaire (EPQ) the NC and IVF groups did not differ in level of anxiety: in both of them about one half of the respondents displayed a low level of anxiety, and a little less than one half showed an average anxiety level. Very few participants in the study rated their level on the Anxiety scale as being high. Thus, about half the respondents experienced anxiety, but very few of them had it in an intense form. A similar distribution of the results can also be observed on the Aggression, Frustration, and Rigidity scales (Table 1).

**Table 1.** Distribution of responses on the EPQ scales in the NC and IVF groups

	IVF Women			NC Women		
	Low level	Average level	High level	Low level	Average level	High level
Anxiety	50%	45.2%	4.8%	48.4%	47.3%	4.3%
Frustration	68.7%	27.4%	3.9%	70.5%	25.9%	3.6%
Aggression	46.6%	50%	3.4%	48.7%	46.7%	4.6%
Rigidity	43.5%	46.8%	9.7%	36.5%	59.8%	3.7%

These data suggest that the mental state of the women did not differ depending on their participation in an IVF program. The level of the severity of these conditions is not associated with a respondent's pregnancy stage or age.

Although the EPQ results showed that about half the women did not experience anxiety, the results of the projective technique Drawing of My Child and Me complemented the resulting picture by revealing their anxiety in a more graphic way. Most of the images for both groups contained signs of anxiety: abundance of shading, small pale figures, lack of color and clear lines in the drawing (59% and 83% in the NC and IVF groups, respectively). At the same time, the IVF participants had significantly more alarming pictures (Fisher's exact test 1.84 at the 0.05significance level) than did the NC women.

Thus, on the EPQ the answers of some of the women did not reflect the anxieties associated with their pregnancy. The women who had conceived after IVF appeared to be more inclined to disregard the difficulties that arose. Some studies suggest that a long infertility period may result in making a woman feel guilty if she «complains» about discomfort, difficulties, or moodiness (for example, Golombok, MacCallum, & Goodman, 2001).

A reduction in anxiety and a disregard of difficulties that did arise were reflected in the Style of Pregnancy Experiences questionnaires. In both groups the pregnant respondents' emotional state can be described as ambivalent and indifferent; the distribution of responses in the groups did not differ significantly (Table 2).

**Table 2.** Distribution of responses for the NC and IVF groups on the Emotional State scale of the Style of Pregnancy Experiences questionnaire

	Adequate	Anxious	Euphoric	Indifferent	Ambivalent	Resentful
NC women	17.8%	2.5%	13.3%	21.5%	40.5%	4.4%
IVF women	20%	-	11.7%	23.3%	41.7%	3.3%

Despite pregnancy complications both groups did not display severe anxiety. The IVF group had no alarm responses, while the NC group registered a mere 2.5%of anxiety responses. In contrast, the sample displayed a pronounced disregard for emerging problems: a large percentage of women deny that there have been any changes in their emotional status. The predominant answer in both

groups was «I keep thinking about my own health and that of my child; I am afraid that something might happen to the baby during childbirth and that worries me a lot.» The Style of Pregnancy Experiences questionnaire rates this answer as ambivalent. Thus, our study confirms the findings of McMahon and colleagues (1997) that IVF program participants tend to worry about their child's health. However, our sample consisted of women who had experienced complications regardless of whether their pregnancy was the result of IVF. Thus, among women who faced real threats to a successful outcome of their pregnancy, concern for their child's health was heightened not only among those who became pregnant after IVF but also among those whose pregnancy was the result of natural conception.

This conclusion is confirmed by the discovery of a connection between anxiety level and previous reproductive losses. The women with no reproductive losses exhibited significantly lower anxiety levels than those with a history of miscarriage (Fisher exact test 2.075 at a significance level of 0.05). Thus, previous experience of a spontaneous abortion contributes to anxiety, which remains pronounced throughout pregnancy. According to data obtained by Hjelmstedt and colleagues (2003), a high level of anxiety is associated with the risk of a miscarriage in the first trimester of pregnancy among IVF women. The most likely cause for increased levels of anxiety stems not only from a high risk of pregnancy termination among IVF women but also from the fact that IVF participants are more likely to have suffered numerous reproductive losses (Gardanova, 2008; Lebedko, 2013). This question should be researched at greater length as our study recorded only the fact that there were an unspecified number of reproductive losses in a woman's medical history.

Both groups under study revealed a similar pattern in the women's mental state. However, the IVF program participants, who had a long history of infertility (average 71 months), felt stronger and more resistant to failure than the NC women, who had tried to conceive a child for an average of 28 months. The longer the infertility period, the less frustration the respondents showed (Pearson's correlation coefficient 362 at the 0.01 significance level). The situation of infertility in the IVF participants may have become customary and have brought about a sense of habituation that reduced the level of their expectations and increased their willingness to meet with failure. Overcoming difficulties most likely contributes to the formation of self-reliance. Women who have overcome serious obstacles to motherhood and have achieved a long-awaited pregnancy may be more confident in their ability to resolve difficult situations in their life, are not afraid of difficulties, and find a way out of problematic situations. There is evidence that the feeling of being in control of a disease is positively related to psychological well-being (Leventhal & Nerenz, 1980). The feeling of lack of control in the lives of couples facing infertility increases the level of stress (Litt, Tennen, Affleck, & Klock, 1992). Most likely, women who have achieved the coveted pregnancy feel serene and confident. A study by Daniluk (2001) quotes couples speaking about their own personal growth and increased self-confidence after long treatment for infertility.

Overall, more than half the women surveyed in both groups experienced a low level of frustration. This result indicates that the sample consisted of fairly stable women who do not easily give in to difficulties, perhaps because of the relatively high socioeconomic status of the respondents. Level of frustration is related to

employment and, consequently, to economic independence and education. In our sample, the higher a respondent's education level, the lower her level of frustration (Pearson's correlation coefficient 149 at a significance level of 0.05). The jobless women also experienced higher levels of frustration compared with the employed women (Pearson's correlation coefficient — 189 at the 0.01 level). The study revealed that the unemployed women and poorly educated women alike felt powerless in the face of challenges as they found it difficult to overcome life's obstacles. Getting a higher education, to say nothing of a degree or a graduate-level education, involves overcoming many obstacles and takes much effort and willpower. The same goes for building a career. Women who seek no advances in the field of education and career may not feel strong and confident enough to overcome potential hurdles and subsequently rely on their partner, if they have one. Assumptions can be made about their personal characteristics, which affect both their career development and their ability to function as parents.

Overall, the sample revealed a positive association between the experience of motherhood and both self-confidence and a sense of one's own strength and resilience in the face of difficulties. The experienced mothers had an increased sense of self-competence, probably because motherhood promotes personal change. Moreover, the more children a mother had, the more confident she felt (Spearman's correlation coefficient -167 at a significance level of 0.05).

The employment rate relates not only to a sense of self-sustainability but also to behavioral flexibility. The women who quit their jobs the moment they got pregnant (4.5% of the sample, or 10 women, 9 of whom were IVF program participants) demonstrated a high level of rigidity in comparison with those who continued to work. Thus, the IVF program participants who put a sudden brake on their professional career found it difficult to adapt to change, to get used to new things. The failure to accept change in their life, to adapt to difficulties, may well constitute a psychological factor of their infertility.

A woman's ability to make effortless transitions and to behave flexibly changes with age. In the total sample, the distribution of scores on the Rigidity scale for different age groups was variable (according to the Mann-Whitney criteria, 037). In the older age group (37 and older) significantly fewer women had a pronounced level of rigidity; most possessed a low level. As they gain in life experience, women learn to adapt to change and become increasingly responsive and adaptable to sudden change in their lives.

Thus, we found no significant differences in the mental state of the women who conceived naturally and those participating in an IVF program.

## **Conclusion**

First, the main source of the women's anxiety was not so much the fact of conception after IVF as the attendant physical problems; evidence for this conclusion was the fact that all the women in the NC group had medical complications. Thus, the mental state of women with physical problems during pregnancy does not differ significantly.

Second, when complications arose during pregnancy, the women tended to ignore them at the conscious level and to overcome their anxiety. On the unconscious

level, the sample as a whole registered higher levels of anxiety. The results of the projective tests in the IVF group also showed higher anxiety levels. The IVF participants tended to be more inclined to overcome their anxieties than the women who conceived naturally.

Third, the main source of anxiety was previous reproductive losses and the presence of objective physical complications.

Fourth, the IVF women, who had a long infertility period, became accustomed to a situation of failure; as a consequence, they exhibited greater stability and willingness to fight for their goals than the NC women, who had shorter periods of infertility. Internal resources that contributed to the women's sense of self-confidence included professional engagement and behavioral flexibility, which makes it possible to successfully adapt to change.

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## Quality of life and relation to disease in patients with bone sarcoma

Olga Yu. Shchelkova, Ekaterina B. Usmanova\*

*Saint-Petersburg State University, Saint-Petersburg, Russia*

\* Corresponding author. E-mail: usmanovakate@yandex.ru

The study aimed to investigate the basic aspects of quality of life and relation to disease in patients with malignant or premalignant bone tumors. Study participants (N=82) were aged 18 to 67 years (average age  $34 \pm 2$  years). They were separated into three groups depending on diagnosis: patients with osteosarcoma, patients with giant cell tumor and patients with chondrosarcoma. The SF-36 Health Status Survey and the Quality of Life Questionnaire - Core 30 with Bone Metastasis (BM22) Module were used to assess patient quality of life. The type of relation to disease method (TOBOL) was used to determine the relation to disease of the patients.

According to the results of the quality of life study, patients with giant cell tumor exhibited the highest degree of limiting physical activity and reduced social functioning, the greatest financial difficulties and more pain sites than either patients with osteosarcoma or patients with chondrosarcoma. The study of relation to disease revealed that all studied groups of patients were susceptible to ergopathic and sensitive types of relation to disease. Moreover, patients with giant cell tumor experienced increased levels of tension and irritability with respect to relation to disease and treatment, while patients with chondrosarcoma were more susceptible to anxiety and hypochondria with respect to relation to disease.

Patients with different types of bone tumors have different experiences with respect to their physical and mental health, their social functioning and their general health. The results of the study may be useful in developing individualized psychological aid programs for patients with malignant and premalignant bone tumors.

**Keywords:** bone sarcoma, malignant bone tumor, quality of life, relation to disease

### Introduction

Over the last few decades, the world has experienced rapid growth in scientific research regarding health-related quality of life (Kasimova & Giryaeva, 2009). Quality of life is a complex system construct that includes a series of interconnected aspects, including safety of physical functions and the extent of physical suffering;



psychological status, which includes the feeling of independence and satisfaction of life at a given moment; possibility of professional activity; quality of social contacts and other aspects. Thus, all basic aspects of personal functioning — physical, psychological (spiritual), social — in the system (integrating and interacting) are presented in the quality of life concept (Wasserman et al., 2011; WHOQOL Group..., 1996). Changes in these basic aspects of personal functioning clearly manifest themselves in oncological patients, and moreover, the nosologic form of the disease significantly influences differences in the indices. The quality of life survey allows for describing and measuring the multiple disturbances that occur in oncological patients during the process of oncological tumor growth (Novik & Ionova, 2002).

There is no doubt that a malignant bone tumor dramatically changes patients' quality of life, as the development of the bone tumor is accompanied by pain and, on some occasions, by bone fractures in the place of pathological process localization. Furthermore, the tumor development affects the mobility of the affected limb, which leads to a sharp decline in the possible physical loads of the patient, including the possibility of long periods of being confined to bed. Bone sarcoma and giant cell tumor treatment, in most cases, require surgical resection of the affected part of the bone and substitution of the defect with endoprosthesis. Thus, the patient experiences a lifelong severe limitation in physical activity. Less frequently, the treatment requires limb amputation, which leads to permanent disability. The treatment for patients with malignant bone tumors compromises every day competence, body image, work and social opportunities. As a consequence, it is important to consider the psychological, functional and quality of life outcomes (Yong-Jian et al., 2012; Eiser et al., 2001). Thus, the significant impact of bone sarcoma on physical activity and social functioning of patients highlights the relevancy of patient quality of life. The study of quality of life in patients with osteosarcoma is especially important given the young age of the patients (up to 35 years) and the aggressiveness of this type of tumor, as it requires that the treatment include both preoperative and postoperative chemotherapy (Agaev, 2005). In addition to the difficulties experienced by survivors of any cancer, those treated for a bone tumor may experience additional threats to quality of life as a consequence of restricted mobility, pain and stigmatization (Eiser & Grimer, 1999).

Relation to disease has the same importance in the treatment and rehabilitation of oncological patients; it is an important component of the internal image of the disease (Luriya, 1977). Relation to disease largely determines the compliance level of the patient, which is a significant factor in treatment efficacy and patient survival (Danilov, 2008; Tkhostov & Nelyubina, 2011; Ngoh, 2009).

The aim of this study was to investigate the basic aspects of quality of life and the relation to disease in patients with malignant bone tumors.

The goals of the study were to conduct a 1) comparative analysis of subjective valuation of general health and psychological and social functioning in patients with different nosological types of malignant bone tumors, 2) comparative analysis of the severity of specific symptoms and the quality of life in patients with malignant bone tumors, and 3) comparative analysis of relation to disease in patients with different nosological types of malignant bone tumors.

## Method

### *Experimental group characteristics and experimental methods*

Study participants (N=82) were inpatients of N.N. Blokhin Russian Cancer Research Center RAMS, Surgery Department of General Oncology. The patients were aged 18 to 67 years old (average age  $34 \pm 2$ ). There were 47 (57%) males and 35 (43%) females in the general group. According to the research goals, the general group was split into three groups based on diagnosis. The first group, (A), included 39 patients diagnosed with osteosarcoma, stage IIB, average age  $27 \pm 2$  years. There were 23 (59%) males and 16 (41%) females in this group. The second group, (B), included 22 patients with giant cell tumor, average age  $36 \pm 3$  years. There were 8 (36%) males and 14 (64%) females in this group. The third group, (C), included 21 patients diagnosed with chondrosarcoma G1, G2, average age  $46 \pm 3$  years. There were 17 (81%) males and 4 (19%) females in this group.

### *Statistical analysis of study results*

Statistical significance of distinctions between groups was calculated using the t-criterion student test, and Microsoft Excel 2007 was used for processing the results.

### *Methods description*

The methods employed included the administration of the SF-36 Health Status Survey (Ware et al., 1993; Wasserman et al., 2011), the Quality of Life Questionnaire - Core 30 of the European Organization for Research and Treatment Cancer (Aaronson et al., 1993; Fayers et al., 1995); the specific module BM-22 (bone metastasis) designed for quality of life evaluation in patients with malignant bone tumors (Nenarokomov, 2012); and the type of relation to disease (TOBOL) (Psychological diagnostic..., 2005).

The SF-36 questionnaire was designed for studying the basic aspects of the HRQoL and the limitations imposed on patients with chronic diseases. The questionnaire includes 11 sections and 11 items. The results are presented for 8 scales: general health, physical functioning, role-physical, role-emotional, social functioning, bodily pain, vitality and mental health. The scores range from 0 to 100.

This method is widely used in scientific research of patients with somatic diseases, including those presenting vital threats (Novik & Ionova, 2002; Wasserman et al., 2011). An example is the EORTC QLQ-C30, which is a highly sensitive tool for evaluating quality of life in patients with oncological diseases apart from its type (Ionova, Novik & Suhonos, 1998). The EORTC QLQ-C30 consists of 30 items that assess global health status, 5 functional scales — specifically, physical functioning, role functioning, emotional functioning, cognitive functioning, social functioning — and 9 symptom items — fatigue, nausea and vomiting, pain, dyspnea, insomnia, appetite loss, constipation, diarrhea and financial difficulties. The scores range from 0 to 100.

The EORTC QLQ-C30 includes different modules for specific nosological types of cancer. One of these modules is the BM22, which is used to study specific symptoms that reflect quality of life in patients with malignant bone tumors. The

module consists of 20 questions and has 2 symptom scales — painful sites and pain characteristics — and 2 functional scales — functional interference and psychosocial aspects. The scores range from 0 to 100.

The type of relation to disease (TOBOL) consists of 12 parts, and each part consists of 2 items. The method determines the relation to disease in patients. There are 12 types of relation to disease: realistic, ergopathic, denial, anxious, hypochondriac, neurotic, melancholy, apathetic, sensitive, egocentric, paranoid, aggressive.

## Results and discussion

According to the goals of the research, in the first phase, the characteristics of health-related quality of life in patients with bone sarcoma were studied. The results of the comparative research of the three groups of patients are presented in table 1 (statistical characteristics based on the SF-36 questionnaire scales).

**Table 1.** Health-related quality of life indices in patients with bone sarcoma

SF-36 Health Status Survey Scales	Patients with Osteosarcoma (n=38) A M ± m	Patients with Giant Cell Tumor (n=22) B M ± m	Patients with Chondrosarcoma (n=21) C M ± m	Reliable Differences
General Health (GH)	60.5 ± 3.29	57 ± 3.14	59.14 ± 4.82	
Physical Functioning (PF)	49.34 ± 4.22	37.27 ± 5.98	57.62 ± 8.2	AB* BC**
Role-Physical (RP)	34.21 ± 6.37	22.73 ± 8.23	42.86 ± 10.46	
Role-Emotional (RE)	50.0 ± 7.07	48.48 ± 9.71	57.14 ± 9.76	
Social Functioning (SF)	67.11 ± 4.49	60.23 ± 5.87	69.05 ± 6.71	
Bodily Pain (BP)	53.84 ± 4.87	50.77 ± 6.57	50.95 ± 6.66	
Vitality (VT)	62.89 ± 3.66	58.86 ± 3.5	62.62 ± 5.88	
Mental Health (MH)	65.68 ± 3.44	58.55 ± 3.08	62.48 ± 4.95	AB*

Note. In this and subsequent tables, \* — corresponds to the level of statistical significance  $0.05 < p < 0.1$ ; \*\* —  $p < 0.05$ ; \*\*\* —  $p < 0.01$ .

According to the SF-36, large values on scoring assessments correspond to better quality of life characteristics. For instance, high scores on the “Bodily Pain” scale indicate that the pain syndrome only slightly limits vital activity and social functioning of the patient. The maximum score for all scales is 100.

The results presented in table 1 show statistically significant differences between groups of patients with respect to physical functioning, as patients with giant cell tumor have the highest degree of limiting physical activity when compared to patients with osteosarcoma and patients with chondrosarcoma. There were also differences found between patients with osteosarcoma and patients with giant cell tumor with respect to mental health, as patients diagnosed with giant cell tumor were more susceptible to depression and anxiety. They were also less satisfied with their emotional state and cognitive functioning than were patients with osteosarcoma.

There were no statistically significant differences between patients with osteosarcoma and patients with chondrosarcoma, as evidenced by the results from the

quality of life study presented in table 2. These results were obtained using the QLQ C-30 designed for studying oncological patients and the specific module BM-22, which was specially designed for studying patients with malignant bone tumors.

**Table 2.** Quality of life indices related to severe defeat of locomotor apparatus (bone sarcoma)

EORTC QLQ C-30 Scales	Patients with Osteosarcoma (n=39) A M ± m	Patients with Giant Cell Tumor (n=22) B M ± m	Patients with Chondrosarcoma (n= 19) C M ± m	Reliable Differences
Global Health Status (QL2)	57.69 ± 3.46	45.08 ± 5.37	54.39 ± 8.03	AB**
Physical Functioning (PF2)	66.67 ± 3.79	60.61 ± 4.10	71.58 ± 6.26	
Role Functioning (RF2)	58.55 ± 5.47	50.0 ± 6.92	64.91 ± 8.87	
Emotional Functioning (EF)	69.87 ± 3.83	65.15 ± 5.37	71.05 ± 5.94	
Cognitive Functioning (CF)	85.47 ± 3.29	81.82 ± 4.48	82.46 ± 5.63	
Social Functioning (SF)	66.67 ± 5.62	52.27 ± 6.07	78.07 ± 6.55	AB* BC***
Fatigue (FA)	40.17 ± 4.1	41.92 ± 4.79	41.52 ± 7.14	
Nausea and Vomiting (NV)	7.69 ± 2.76	3.79 ± 1.92	2.63 ± 2.70	
Pain (PA)	37.6 ± 5.03	51.52 ± 7.27	47.37 ± 8.2	
Dyspnea (DY)	19.66 ± 4.76	15.15 ± 5.37	17.54 ± 7.58	
Insomnia (SL)	31.62 ± 5.1	30.30 ± 6.7	40.35 ± 9.29	
Appetite loss(AP)	23.93 ± 4.63	31.82 ± 6.14	19.29 ± 7.99	
Constipation (CO)	11.97 ± 4.2	12.12 ± 4.23	17.54 ± 6.61	
Diarrhea (DI)	4.27 ± 1.83	4.55 ± 3.4	8.77 ± 4.42	
Financial Difficulties (FI)	54.7 ± 5.48	69.7 ± 7.07	43.85 ± 7.43	AB* BC**
QLQ-BM22 scales				
Pain Sites (BMPS)	18.12 ± 2.05	26.67 ± 4.27	17.4 ± 4.23	AB* BC*
Pain Characteristics (BMPC)	23.93 ± 4.72	32.28 ± 5.77	32.1 ± 7.03	
Functional Interference (BMFI)	68.16 ± 4.35	60.71 ± 4.1	65.51 ± 7.03	
PsychosocialAspects(BMPA)	46.72 ± 3.57	40.21 ± 4.02	50.62 ± 4.69	BC*

According the EORTC QLQ C-30 for functional scales and the general health scale, the best health status of patients corresponds to 100, while the worst health status corresponds to 0. For all symptom scales, the best health status corresponds to 0, while the worst health status corresponds to 100 (Fayers P. at al., 1995).

The results presented in table 2 indicate that patients with osteosarcoma evaluate their general health as higher than patients with giant cell tumor. These data are consistent with the results of the health-related quality of life study using the SF-36.

Patients with giant cell tumor undergo only surgical procedures, and moreover, this disease is not malignant. In contrast, patients with osteosarcoma generally require both preoperative and postoperative chemotherapy, as this is an aggressive

malignant tumor. This discrepancy is addressed when considering the psychological aspects of quality of life parameters, which are subjectively evaluated by the patients. Despite the more severe treatment and the malignancy of the tumor, and contrary to the clinical characteristics, patients with osteosarcoma perceive their general health as better when compared to patients with giant cell tumor.

The data also indicate differences between the groups with respect to social functioning. Patients with osteosarcoma and chondrosarcoma were susceptible to an increased level of social activity than were patients with giant cell tumor. Accordingly, these data characterize that the quality of life in patients with bone sarcoma, with respect to social functioning, was higher than it was for patients with premalignant tumors.

A statistical analysis of the data further revealed differences between patients with osteosarcoma and chondrosarcoma and patients with giant cell tumor regarding financial difficulties such that patients with giant cell tumor faced greater financial difficulties due to the disease and the required treatment compared to patients with bone sarcoma. Additionally, the quality of life for patients with giant cell tumor was found to be lower than the quality of life for patients with osteosarcoma and chondrosarcoma based on the scores reported on the pain sites scale. More specifically, patients with giant cell tumor characterized their pain as more widespread than did patients with bone sarcoma. Despite this finding, patients with giant cell tumor experienced fewer difficulties with respect to the psychosocial aspects of life compared to those of patients with chondrosarcoma.

There were no statistically significant differences regarding the quality of life parameters between the groups of patients with osteosarcoma and the patients with chondrosarcoma.

Quality of life is largely based on the individual's attitude toward health as a vital value. Therefore, the understanding and awareness of this value are important when evaluating an individual's disease. Based on Myasishev's theory of personality, quality of life may be interpreted as the manifestation of the intercommunication "system of relations — disease" (Iovlev & Karpova, 1999). Thus, the psychological mechanisms of disease impact the personality and the personal well-being of the patient and must be considered based on the position of the personality relations system and the subjective meaning of disease as an event in one's life (Vasserman et al., 2011). One of the most significant areas of personality relations of individuals with severe chronic diseases is that of the patient's relation to disease. Thus, the next phase of this research examined the types of relations to disease in patients with malignant bone tumors.

The study employed the types of relations to disease method (TOBOL) in the three groups of patients as presented in table 3.

Table 3 indicates that patients with malignant bone tumors are more susceptible to ergopathic and sensitive reactions toward their disease, as all three groups of patients were inclined to exhibit excessive responsibility behaviors toward work, a desire to maintain their professional status and the intent to maintain the level of professional activity even at the expense of their physical well-being due to the detrimental effects on their treatment. Moreover, these patients are excessively vulnerable and are concerned about how others perceive their disease. For example, patients with bone malignant bone tumors are afraid that they will be a burden on their relatives, fearing an unfriendly relationship.

**Table 3.** Relation to disease in patients with bone sarcoma

Type of Relation to Disease (TOBOL Scales)	Patients with Osteosarcoma (n=39) A M± m	Patients with Giant Cell Tumor (n=21) B M± m	Patients with Chondrosarcoma (n= 21) C M± m	Reliable Differences
Harmonic	12.33 ± 2.07	11.19 ± 1.64	13.8 ± 3.03	
Ergopathic	25.85 ± 1.72	26.57 ± 2.14	24.43 ± 2.9	
Anosognosic	12.46 ± 2.57	7.57 ± 2.8	7.67 ± 2.93	
Anxious	9.28 ± 1.96	15.57 ± 2.07	14.19 ± 2.51	AB** AC*
Hypochondric	9.82 ± 1.18	10.1 ± 2.36	13.24 ± 1.78	AC*
Neurasthenic	7.49 ± 0.99	10.43 ± 1.67	8.05 ± 1.15	
Melancholic	3.92 ± 0.71	4.48 ± 1.56	5.05 ± 1.46	
Apathetic	4.1 ± 0.76	4.43 ± 1.15	4.86 ± 0.9	
Sensitive	19.18 ± 1.54	21.38 ± 1.73	19.71 ± 2.3	
Ego-centric	8.15 ± 0.8	12 ± 1.47	10.19 ± 1.12	AB**
Paranoiac	5.13 ± 0.74	7.62 ± 1.27	4.9 ± 1.06	AB* BC*
Dysphoric	3.3 ± 0.72	5.95 ± 1.65	2.19 ± 0.76	BC**

There are statistically significant differences between the groups of patients with respect to the level of patient anxiety regarding their disease. Patients with osteosarcoma are less susceptible to anxious responses to disease than are patients with giant cell tumor or patients with chondrosarcoma. In fact, patients with giant cell tumor and patients with chondrosarcoma are inclined to experience constant anxiety and suspicion regarding the adverse course of the disease, and therefore, they search for new ways to treat their anxiety.

A statistical analysis of the data further shows that patients with chondrosarcoma are more susceptible to a hypochondriac relation to disease than are patients with osteosarcoma. Consequently, patients with chondrosarcoma are more inclined to focus excessively on painful sensations, to exaggerate their suffering and to feel compelled to tell their doctors about their painful sensations. It was also determined that patients with giant cell tumor are more inclined to experience an egocentric type of relation with their disease than are patients with osteosarcoma. Thus, patients with giant cell tumor are more inclined to search for “secondary benefits” due to their illness and tend to require constant attention and care, with the intent being to demonstrate their suffering.

Furthermore, the results of the study indicate a greater tendency among patients with giant cell tumor to exhibit a paranoiac relation to disease than among patients with osteosarcoma and chondrosarcoma. The patients with giant cell tumor are more inclined to be suspicious with regard to methods of treatment and exhibit a greater tendency to attribute complications and side effects to the negligence of doctors. Additionally, the data suggest that patients with giant cell tumor are more susceptible to a dysphoric (aggressive) type of relation with their disease than are patients with chondrosarcoma. Thus, it is more common for patients with



giant cell tumor to experience dark moods, be envious of healthy persons and to display aggressive tendencies or despotic attitudes toward family.

Among these orientations for all studied groups of patients, ergopathic and sensitive types of relation to disease can be attributed to a clearly defensive nature. The ergopathic type of relation to disease is one of the most adjustable types (Psychological diagnostics..., 2005) and thus represents a sufficient level of motivation and social orientation of behavior. In this regard, it is further noted that the data are consistent with the study results of Morrissy and Weinstein (2006). Their study, which was devoted to the assessment of the quality of life of patients with osteosarcoma who also had rotationplasty, demonstrated that although the patients' physical function was less than in healthy peers, psychological adaptation and life contentment were relatively the same between the two groups.

In the group of patients with giant cell tumor, the study reveals a reduced quality of life with respect to several parameters, namely physical functioning, social functioning, financial difficulties and pain sites, when compared with the groups of patients with osteosarcoma and chondrosarcoma. Furthermore, the study reveals that patients with giant cell tumor exhibit a tense and irritable relationship with both disease and treatment. These results correspond to the results of a longitudinal study conducted by Chinese researchers in which it was found that a year after terminating treatment, patients with bone tumors still suffered from a declining quality of life compared with their healthy peers. Specifically, quality of life parameters for these patients were lower on all scales of the SF-36 Health Status Survey (Yong-Jian et al., 2012). Nonetheless, according to the study's data, this group of patients is not the most unsuccessful in the psychosocial aspects of life.

This study concludes that patients with chondrosarcoma are more susceptible to anxiety related to disease and to hypochondriac fixation compared to the other groups of patients.

## **Conclusion**

Despite the similarities of the clinical picture, its dynamics and its prognoses, patients with different types of bone tumors have different experiences according to their situation and relation with the disease, and thus, they evaluate their physical and mental health, social functioning and general health in different ways. Our data are consistent with previous works, thereby suggesting that the outcomes for patients with different types of tumor or at different stages of the disease and treatment may vary (Eiser & Grimer, 1999; Eiser et al., 2001; Yong-Jian et al., 2012).

The results of this study define the need for the development of individualized psychological aid programs for patients with malignant and premalignant bone tumors. Moreover, different nosological forms of bone tumors are typical for different age periods, each of which seems to have its own standards of quality of life.

A new interdisciplinary branch of clinical and research medicine, psychology and psychotherapy — psycho-oncology — has been formed (Holland et al., 1995). This new branch of psychosomatic medicine and new field of medical psychology — onco-psychology (Tarabrina, 2010) — studies the psychological effects of cancer incidence and progression as well as problems related to personality adjustment to the disease and issues associated with promoting acceptable patient quality



of life. Though oncology in this sense is close to other fields of physical medicine, psycho-oncology has distinctive features related to particularly severe stress factors such as malignant neoplasms, emotional reactions to diagnoses, the high frequency of the adverse courses of the disease, vital threats, and serious complications during treatment.

Individual sense and significance of the diagnosis largely determine patient behavior during treatment, motivation to cure and individual satisfaction with quality of life under the conditions of the disease (Wasserman et al., 2011). Levin and Kissane (2007) explain that self-awareness, freedom and responsibility to make vital decisions, complete loneliness and human need for communication, meaning of life and inevitable reality of death are topics addressed by psycho-oncology. The modern level of psycho-oncology development involves the differentiated study of psychosocial factors and quality of life in patients with malignant tumors in various sites of the body. As this study of the main aspects of quality of life and relation to disease in patients with malignant bone tumors is one of the first, it consequently outlines some general landmarks of psychological support and rehabilitation of patients.

The issue of quality of life in patients with malignant bone tumors requires further research. A possible direction of this research may include a comparative analysis of the quality of life in patients with primary bone tumors compared to patients with bone metastases. Further research may also direct attention to the application of the results of the quality of life study in routine clinical practice.

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## COGNITIVE PSYCHOLOGY

### **The relationships between the achievement motivations and temperaments of psychology students with different lateral organization profiles**

Elena V. Vorobyeva\*, Pavel N. Ermakov, Oksana S. Saakyan

*Southern Federal University, Rostov-on-Don, Russia*

\*Corresponding author. E-mail: [evorob2012@yandex.ru](mailto:evorob2012@yandex.ru)

The objective of this research was to assess the motivational potential of psychology students using an egoskopiya method. Heart rate and EEG data were recorded while the participants performed the Mehrabian achievement motivation test. Thirty students of the Faculty of Psychology of Southern Federal University who were aged between 20 and 30 years participated. The psychodiagnostic study involved 136 students from the Faculty of Psychology of Southern Federal University who were aged between 18 and 49 years. To determine the lateral organization profiles of sensory and motor functions, a computer-based testing program termed "Profile" was used. The Compact Russian Structure of Temperament Questionnaire (STQ-77) was used to evaluate the features of temperament.

The results revealed that people with a strong motivation to succeed exhibited a predominance of right features in their lateral organization profiles. Their cardiovascular systems were in more activated states than those of the people who were extremely motivated to avoid failure. The observed temperament features of psychology students with different levels of achievement motivation indicated that the level of achievement motivation is related to the properties of temperament such that students with lower levels of achievement motivation (i.e., motivation to avoid failure) exhibited the temperament traits of Neuroticism and Impulsivity in addition to low values on the scales for the Sensitivity to Sensations, Intellectual Ergonicity, and Sensitivity to Probabilities. High levels of achievement motivation (i.e., motivation to strive toward success) corresponded to the psychology students' propensities for Sensitivity to Sensations, high levels of Intellectual Ergonicity, high levels of Sensitivity to Probabilities and low values on the scales of Impulsivity and Neuroticism.

**Keywords:** individual profile asymmetry, achievement motivation, temperament, egoskopiya.

## **Introduction**

Motivation is often a determinant that defines efficiency. Time spent as a student is a period of intense development of the motivational sphere and professional skills. The effectiveness of the educational process in higher education is directly related to the level of motivation of the students toward the training in their chosen profession. Achievement motivation occupies an important place in the structure of the motivational sphere of the future expert. We have previously used the twin method to show that achievement motivation is closely related to general, verbal and non-verbal intelligence and the subject of both environmental and hereditary influences (Vorobyeva & Popova, 2009). There are electroencephalographic features that are associated with the manifestations of the motivation to avoid failure and the desire to succeed (Ermakov et al., 2011, Vorobyeva et al., 2012). Studies of achievement motivation have made it possible to estimate the real socio-environmental opportunities for its formation and development. Further work in this regard will involve research assessing the relationships between achievement motivation and the peculiarities of individual profile asymmetries and temperament traits.

Individual profile asymmetry is manifested as a set of motor, sensory, and cognitive asymmetries that are specific to an individual. The reasons for the differences in individual profiles of asymmetry are actively being investigated, and it has been shown that the greatest contribution to the differences in manual asymmetry include the contributing factors of the shared environment. Furthermore, the contribution of genetic factors increases with increases in respondent age (Vuoksi-maa et al., 2009; Medland et al., 2009; Teixeira, 2008). Among the reasons for the lateralization of motor functions, hereditary (i.e., genetic causes) and cultural-environmental (i.e., belonging to a certain population) causes stand out (Sommer et al., 2008). The latter influences are well known and are manifested at different frequencies in different types of lateral organization profiles of sensorimotor functions in different populations. In this regard, we performed a study that assessed the contributions of genetic and environmental factors to the manifestation of individual profiles of asymmetry in a South-Russian sample (Ermakov et al., 2010; Vorobyeva, 2012).

Features of temperament and the individual-typological features underlying them can be considered to be important foundations of individual differences that provide individual generations with individual styles of both professional and educational activity (Ilyin, 2001). V.M. Rusalov et al. identified the physiological characteristics of students with who had chosen different professions and found that the most important indicator of temperament was endurance (Rusalov, Rusalova & Strelnikova, 2004). In recent years, cross-cultural studies have shown the effectiveness of the model of temperament that underlies the Structure of Temperament Questionnaire STQ-77E in the forecasting of success based on various types of mental activity (i.e., intellectual, social, verbal, and “mixed”) (Rusalov & Trofimova, 2011).

Applied methods of behavioral genetics have revealed significant genetic conditioning and inter-individual differences in the characteristics of temperament. Thus, J.O. Novgorodova assessed the contributions of genetic and environmental factors to the variability of the features of temperament in primary school children. To assess temperament, this author used the parent version of the questionnaire

that was also used by Rothbart. The sample consisted of 85 pairs of twins aged 7 to 10 years of which 49 pairs of twins were monozygotic and 36 pairs were same-sex dizygotic twins. The highest estimates of the contributions of genotype were obtained for indicators that included fear, braking control, shyness and depressed mood (Novgorodova et al., 2010). Another study that involved monozygotic and dizygotic twins aged 12–14 years that employed the Structure of Temperament Questionnaire revealed that genetic determination was highest in terms of social tempo and objective and social emotional sensitivity (Malykh et al., 2009).

Previously, we sought to define the contributions of genetic and environmental components to phenotypic variation in temperament and the genetic correlations between temperament and achievement motivation. Here, we sought to assess the degrees of temperament features using the Structure of Temperament Questionnaire. This study involved 16 pairs of same-sex dizygotic twins aged from 10 to 19 years and 27 pairs of monozygotic twins aged from 8 to 27 years. For the structure of temperament questionnaire, the highest heritability is set to a scale such as endurance. The hereditarily determined phenotypic variations in plasticity, social tempo emotion, and social emotion are also revealed. It was found that the degree of achievement motivation was directly proportional to the levels of endurance, social endurance, plasticity, tempo, and social tempo and inversely associated with emotional and social emotional (Vorobyeva, 2006).

The purpose of this study was to examine the motivational features of psychology students of the Faculty of Psychology of the Southern Federal University (Rostov-on-Don) with different lateral organization profiles in combination with the recording of electrophysiological parameters.

## **Method**

### ***Participants***

This work was performed in two stages and involved two samples. The research objective was to assess the motivational potential of psychology students via the egoskopiya method. The participants' heart rate and EEG data were recorded while they performed the Mehrabian achievement motivation test. The individual asymmetry profiles of the participants were assessed using the "Profile" computer program. Thirty students of the Faculty of Psychology of Southern Federal University with ages from 20 to 30 years (17 women, 13 men) participated. All examinees were free of neurologic, mental and somatic disorders, and all participants had previously been acquainted with and agreed to the research procedure. The psychodiagnostic study involved 136 students of the Faculty of Psychology of Southern Federal University aged from 18 to 49 years (113 women and 23 men).

### ***Instruments***

The egoskopiya method consists of the simultaneous application of psychometric tests and the recording of various physiological signals to allow for the objectification of the acquired data (Yuriev & Skomorokhov, 2007).

Egoskop (Medicom, Russia) is intended for the automated performance of pilot studies of personality via psychodiagnostic techniques that employ the synchronous registration of physiological signals. The EEG recording during the egoskop

inspection in our work was performed with electrodes in the Fz, Pz and the ear reviewer positions and conducted in a soundproof room while the participants' eyes were open. In this paper, we used estimates of the alpha index (i.e., the amplitude of the alpha rhythm in the electroencephalogram).

The psycho-diagnostic tests were presented to the examinee on a computer monitor, and the answers were acquired on an electronic tablet. The "Achievement motivation" test (from A. Megrabyan as modified from M. Sh. Mahomed-Eminov) was used for the assessment of the motivational features of the psychology students.

To determine the profiles of the lateral organizations of the sensory and motor functions, a computer-based testing program termed "Profile" was used. In this paper, we investigated manual, visual and auditory asymmetries. Manual asymmetry was assessed using a questionnaire and the following series of samples: the Annette test, which is a questionnaire that assesses the extent to which the right or left hand is dominant; the Tapping test, which determines the maximum frequencies at which a button can be clicked with the right and left hands; and the track-test, which determines the time required to complete a hand-eye coordination test. Relevant issues were used to determine the leading leg. The leading ear was evaluated with the following question: In which ear is the tray clock? The participants were instructed to keep their ear to any handset. The conclusion regarding the dominant ear was made based on the results of a dichotic test. The following samples were used to assess visual asymmetry: a distant object was viewed through a hollow tube, and the eye to which the tube was brought was noted, and the "hole in the map" test, in which the subject captures an object through a small hole in a paper that he holds with both hands and then closes the dominant eye, which leads to the disappearance of the object, was performed. To determine the dominance of a verbal or figurative thinking style, the association test of H. Eysenck was used. Based on the test results, the type of lateral organization profile was defined as one of the following: right (5), partial right (4), partially balanced (equipartitioned) — ambidexterity (3), partial left (2), or left (1). (Due to a lack of profile lateral organization in this study, this parameter was not included.)

The Compact Russian Structure of Temperament Questionnaire (STQ-77) (Rusalov & Trofimova, 2011) was used to evaluate the features of temperament. The Compact Russian STQ (STQ-77R) includes the following scales: Motor, Social, and Intellectual Ergonicity (ERM, ERS, and ERI, which measure the abilities of an individual to sustain prolonged physical, social, and mental activity, respectively); Scales of Motor and Social Tempo (which measure the preferred speeds of manipulating physical objects (TMM) and speaking, reading and other verbal activities (TMS)); Sensitivity to Sensations (SS, a measure of the sensitivity to basic physical sensations and pleasures and a measure of the tendency toward sensation-seeking and risk-taking behavior); Empathy (EMP, a measure of the sensitivity to other people's states and expectations); Plasticity (PL, a measure of the ability to adapt quickly to changes in the situation and to shift between different tasks); Self-Confidence (SLF, a measure of the tendency to be optimistic and confident about one's performance and to ignore other people's criticism); Sensitivity to Probabilities (PRO, a measure of the ability to develop adequate understandings and expectations of probable events and the efficient extraction and processing of new knowledge, classification, and learning abilities); Impulsivity (IMP, a measure of



the lability of emotional reactions); Neuroticism (NEU, a measure of the expectations of negative outcome and low tolerances for uncertainty).

The statistical testing was performed with analyses of variance (ANOVAs).

## Results

### *Psycho-physiological stages*

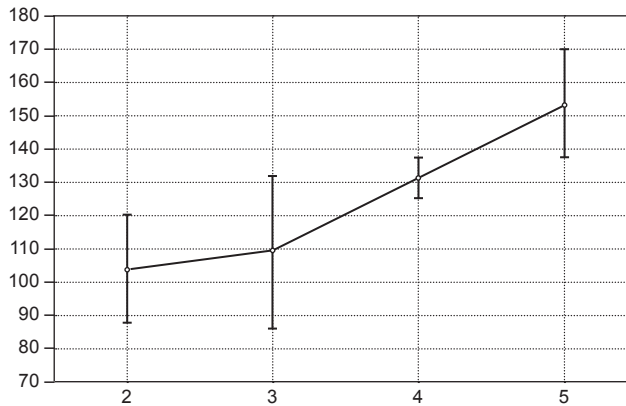
Descriptive statistical analyses of the psychophysiological data obtained during the test of achievement motivation using the method of egoskopiya revealed that the average heart rate (HR) was  $76.95 \pm 13.92$ , the pulse pressure was  $-40.0 \pm 13.99$ , and the alpha index was  $22.87 \pm 20.57$ .

These indicators of heart rate were normal ( $<80$ ). The alpha index values were also in the normal range ( $<50\%$ ). Low alpha index values (below 30%) explained the EEG situation in which the eyes were open during the performance of tests that utilized the method of egoskopiya.

After acquiring the diagnostic data regarding achievement motivation, the participants were divided into three groups: low achievement motivation ( $n=13$ ,  $<122$  points on the test of achievement motivation), average achievement motivation ( $n=9$ ,  $122-150$  points), and high achievement motivation ( $n=8$ ,  $>150$  points).

The high-level of achievement motivation group was found to have a significantly higher heart rate ( $HR=84$ ) than the low achievement motivation group ( $HR=75$ ;  $p < 0.05$ ).

The  $\alpha$  index values during the open-eye EEG recordings of the high achievement motivation participants were significantly lower (alpha index: 14.8%) than those of the low achievement motivation participants (alpha index: 24.2%;  $p < 0.05$ ).



**Figure 1.** Analysis of variance (ANOVA) results. The dependent variable was the achievement motivation questionnaire outcome, and the independent variable was the individual profile asymmetry (4 levels: 2-left partial, 3-equipartition, 4-right partial, and 5-right profile).

The individual asymmetry profile analyses revealed that the most common profile was the right partial profile ( $n=16$ ), followed by the right profile ( $n=5$ ), ambidextrous profile ( $n=5$ ), and left partial profile ( $n=4$ ). No subjects with the left profile were identified. The achievement motivation was found to be higher in the par-



ticipants with right dominant lateral organization profiles. The participants with right lateral profiles exhibited an average achievement motivation value of  $154 \pm 2,8$  points, those partial right lateral profiles averaged  $131.31 \pm 11,5$  points, those with ambidextrous profiles averaged  $109 \pm 5.1$  points, and those with left partial lateral profiles averaged  $104 \pm 5.6$  points.

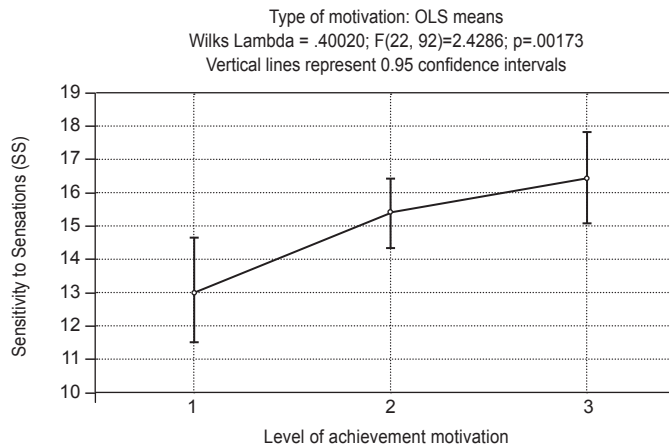
We used analysis of variance (ANOVA) to study the influence of individual profile asymmetry (four levels: 2-left partial profile, 3-partial balanced (equipartitions), 4-right partial profile, 5-right profile) on achievement motivation. A significant effect was observed ( $F=8.4^{**}$ ,  $p < 0.01$ ). The greatest of achievement motivation values were associated with greater expressions of the right features in the lateral organization profiles (Figure 1).

### Psychodiagnostic results

Spearman correlation analyses of the associations between the diagnoses of temperament and achievement motivation revealed that achievement motivation was significantly and directly related to Sensitivity to Sensations (SS,  $r=0.43$ ,  $p < 0.05$ ), Intellectual Ergonicity (ERI,  $r=0.45$ ,  $p < 0.05$ ), and Sensitivity to Probabilities (PRO,  $r=0.41$ ,  $p < 0.05$ ).

Achievement motivation was inversely related to Impulsivity (IMP,  $r=-0.31$ ,  $p < 0.05$ ) and Neuroticism (NEU)  $r=-0.62$ ,  $p < 0.05$ .

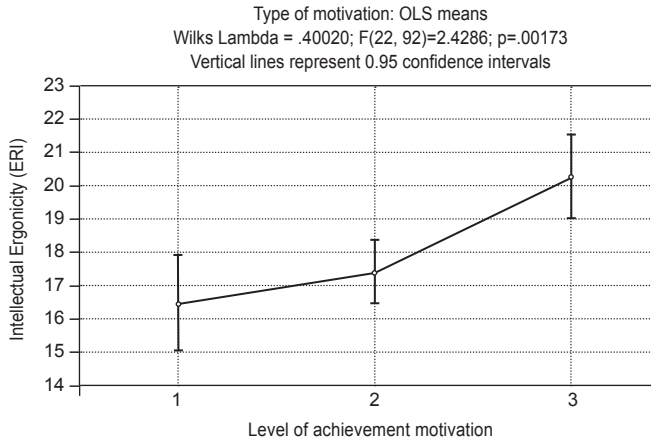
Figure 2 demonstrates the results of an analysis of variance (ANOVA) (dependent variable: the Sensitivity to Sensations (SS) scale; independent variable: achievement motivation). Figure 2 shows that the highest values on the Sensitivity to Sensations scale were observed for the students who were motivated by strong desires to succeed.



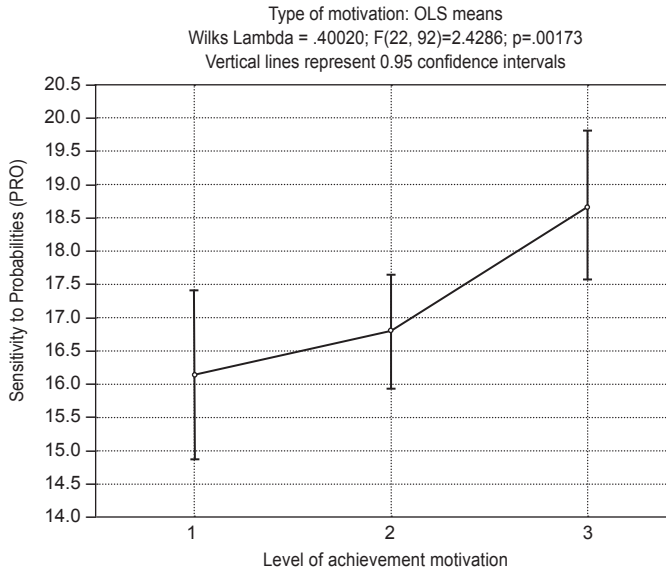
**Figure 2.** Analysis of variance (ANOVA) results (dependent variable: Sensitivity to Sensations (SS) from the STQ-77R; independent variable: achievement motivation with 3 levels: 1 — motivation to avoid avoiding failure, 2 — medium level of achievement motivation, and 3 — motivation to succeed).

Figure 3 shows the results of an analysis of variance (ANOVA, dependent variable: the Intellectual Ergonicity (ERI) scale of the STQ-77R; independent variable:

achievement motivation). Figure 3 shows that the highest values on the Intellectual Ergonicity scale were observed among the students who were motivated by a strong desire to succeed.



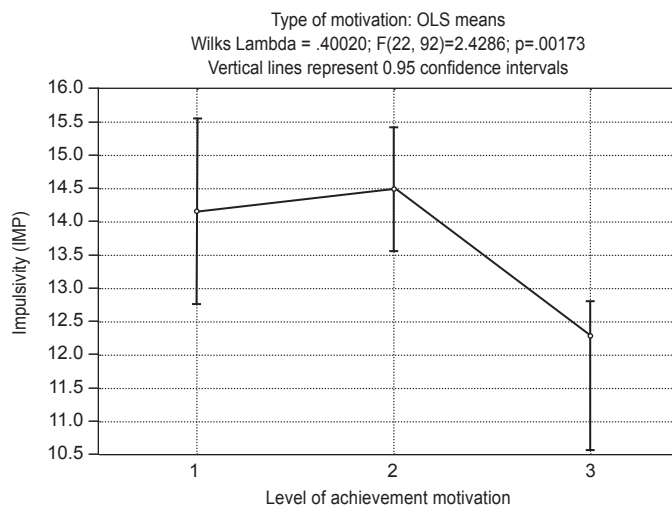
**Figure 3.** Results of a univariate analysis of variance (ANOVA, dependent variable: the Intellectual Ergonicity (ERI) scale of the STQ-77R; independent variable: achievement motivation with 3 levels: 1 — motivation to avoid failure, 2 — medium level of achievement motivation, 3 — motivation to succeed).



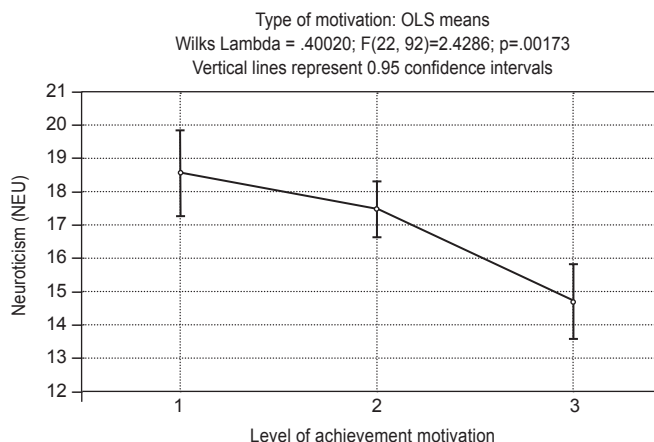
**Figure 4.** Results of a univariate analysis of variance (ANOVA) (dependent variable: the Sensitivity to Probabilities (PRO) scale of the STQ-77R; independent variable: achievement motivation with 3 levels: 1 — motivation to avoid failure, 2 — medium level of achievement motivation, 3 — motivation to succeed).

Figure 4 shows the results of a univariate analysis of variance (ANOVA) (dependent variable: the Sensitivity to Probabilities (PRO) scale of STQ-77R; indepen-

dent variable: achievement motivation). Figure 4 shows that the highest Sensitivity to Probabilities values were observed among the students who were motivated by a strong desire to succeed.



**Figure 5.** Results of a univariate analysis of variance (ANOVA) (dependent variable: the Impulsivity (IMP) scale of the STQ-77R; independent variable: achievement motivation with 3 levels: 1 — motivation to avoid failure, 2 — medium level of achievement motivation, 3 — motivation to succeed).



**Figure 6.** Results of a univariate analysis of variance (ANOVA) (dependent variable: the Neuroticism (NEU) scale of STQ-77R; independent variable: achievement motivation with 3 levels: 1- motivation to avoid failure, 2 - medium level of achievement motivation, 3 - motivation to succeed).

Figure 5 shows the results of a univariate analysis of variance (ANOVA) (dependent variable: the Impulsivity (IMP) scale of the STQ-77R; independent variable: achievement motivation). Figure 5 shows that the highest values on the impulsivity scale were observed among the students who were motivated by a strong desire to avoid failure and those with a medium level of achievement motivation.

Figure 6 shows the results of a univariate analysis of variance (ANOVA) (dependent variable: Neuroticism (NEU) on the STQ-77R; independent variable: achievement motivation). Figure 6 shows that the highest values on the neuroticism scale were obtained from the students with a strong motivation to avoid failure.

Thus, the results of the study showed that psychology students with strong motivations to succeed scored highly on the Sensitivity to Sensations, Intellectual Ergonicity, and Sensitivity to Probabilities scales, and these students exhibited low scores on the Impulsivity and Neuroticism scales.

## **Conclusion**

This paper found that people with a strong motivation to succeed exhibit predominantly right features in their lateral organization profiles. Their cardiovascular systems are in more activated states than those of people who are extensively motivated to avoid failure. In this case, the lower alpha index values during the test situation when the participants' eyes were open can be regarded as evidence of greater activation of the brain systems responsible for self-regulation and attention.

It has been shown that increases in heart rate variability are observed simultaneously with decreases in  $\alpha$  power and are indicative of enhancements of activation (Yu X. et al., 2009, Chang et al., 2011).

The close relationship of the indices of  $\alpha$  activity and heart rate variability has also been shown, and this relationship testifies to the important role of neurovisceral relationships in the regulation of mental processes (Bazanov et al., 2013).

In the present study, we found that among psychology students, the focus on achieving success was associated with low impulsivity. Egorova MS and colleagues suggested that achievement motivation can be considered to be a component of the basic properties of an individual (similar to the "Big Five" personality traits of awareness and impulse control) (Egorova et al., 2004).

Moreover, the psychology students with high levels of motivation to succeed also exhibited high levels of Intellectual Ergonicity and Sensitivity to Probabilities (i.e., the ability to quickly predict events and predict their consequences). In our opinion, this result is due to the specific professional work of psychologists.

In this study of the temperament features of psychology students with different levels of achievement motivation, the level of achievement motivation was found to be related to the properties of temperament such that lower levels of achievement motivation (i.e., the motivation to avoid failure) corresponded with the temperament traits of Neuroticism and Impulsivity and with low values on the Sensitivity to Sensations, Intellectual Ergonicity, and Sensitivity to Probabilities scales among psychology students.

High levels of achievement motivation (i.e., the motivation to striving for success) corresponded with the high scores on the Sensitivity to Sensations, Intellectual Ergonicity, and Sensitivity to Probabilities scales and low scores on the Impulsivity and Neuroticism scales.

## **Acknowledgements**

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## **Multidimensionality of thinking in the context of creativity studies**

Anastasiya K. Belolutszkaya

*Moscow City Teachers' Training University, Moscow, Russia*

E-mail: [anabel@eurekanet.ru](mailto:anabel@eurekanet.ru)

This article describes the theoretical difference between the flexibility and the multidimensionality of thinking. Multidimensionality is discussed as a characteristic of thinking that is necessary for exploration of the variability of structural transformations of problematic situations.

The objective of the study was to examine a number of theories concerning the correlative connection between the multidimensionality of thinking and other characteristics of creative, productive thinking: the flexibility of thinking; the formation of an operation of dialectical thinking such as “mediation”; the ability of a person to use a scheme as an abstraction for analysis of various specific content.

A total of 85 people participated in the study: they were 15 to 17 years old, students at a senior school in Kaliningradskaya oblast, winners of different stages of the all-Russian academic competition in physics, chemistry, and mathematics. All respondents had a high level of academic success and of general intelligence.

The following techniques were used in this study: (1) my technique for diagnostics of the multidimensionality of thinking; (2) my technique of “schemes and paintings,” designed for diagnostics of the ability to relate abstract schemes and various specific content; (3) the Torrance Tests of Creative Thinking (verbal battery); (4) a diagnostic technique for dialectical thinking: “What can be simultaneous?”

All the hypotheses were confirmed.

Confirmation was received of the existence of a correlation connection; this finding counts in favor of the assumption that the parameters of thinking my colleagues and I were working with can in aggregate be considered an integral characteristic of human thinking. It allows us to distinguish significant features of a situation from secondary ones—that is, to see a substantial contradiction and to propose several options for its transformation.

**Keywords:** multidimensionality of thinking, dialectics, theoretical generalization, flexibility, transformation, intellectual creativity

## Introduction

The mechanisms and characteristics of creative thinking are the subject of studies by many major researchers both in Russia (Altshuller, 2007a, 2007b; Bayanova, 2012; Belolutskaya, 2011; Davydov, 1996; Elkonin, 1994; Galperin, 1966; Krasheninnikov, 2005; Leontiev, 1975; Lewin, 2001; Rubinstein, 1957; Spiridonov, 2000; Velichkovsky, 2006; Veraksa, 2009; Vygotsky, 1934/1999; Wertheimer, 1987) and abroad (De Bono, 2000; Dorner, 1997; Duncker, 1965; Gardner, 2007; Guilford, 1959; Lévy-Bruhl, 1994; Piaget, 1953/1994; Sternberg, 1959; Torrance, 1962). Despite differences in approach, it is still possible to define some features that are considered fundamental by the majority of researchers. One of these features is, for instance, flexibility of thinking.

This notion became truly crucial within the creativity concept of Guilford (1959) and Torrance (1962), although many other scientists mentioned the necessity to “change position,” “look from a different angle,” “make up the most impossible and fantastic variants of a solution,” “forget stereotypes,” and so forth, while discussing the increase of the probability of a creative solution. Initially, “demonstration of flexibility of thinking” meant production of a maximum number of options regarding what to do with an object—for example, with a brick or a head of cabbage. Thus, the differences among those options must have been based on the diverse characteristics of that object. For example, a proposal to play football with a head of cabbage and also to throw it and break a glass window does not indicate flexibility because the same feature of the object was used—its ability to be thrown. But a proposal to play football and then to play cards by drawing suits and pictures on cabbage leaves indicates flexibility because, first, the head of cabbage was thrown and, second, it was taken to pieces. At a later stage this idea was elaborated in the design of diagnostic techniques. The following type of tasks began to be proposed: “Please ask as many questions about the picture as possible.” The stimulus material could be, for example, a picture of a boy looking at his reflection in a pond (actually the content of the picture was of no significance). Suppose a respondent asked, “Why is the boy wearing shorts?” and then “What is the color of his hat?” Those answers do not reflect flexibility because both the questions concerned clothes. But if the “hat” question came first and then, for example, “Does he have any siblings?” one could say the answers reflect flexibility because the respondent pointed to different characteristics of the boy: he simultaneously could be wearing clothes and be a member of a family. Such an interpretation of creativity was the subject of just criticism by many local and foreign researchers because of its empiricism and lack of methodological elaboration of the qualitative distinctness of the mental structures forming the basis for intellectual action (Sternberg & Grigorenko, 1997). The person completing the task (a) proposes “thumbing through” variants and (b) does not solve the problem (because the question set by this technique does not present a problem requiring a solution but rather some fantasizing concerning the stimulus material).

In turn we can particularize a description in a Torrance test and its interpretation to point out one specific feature crucial for further discussion: in order to demonstrate this kind of flexibility, respondents need to mentally pull apart an entire object into different features. Given that the essence of the object inevitably gets lost

when a head of cabbage is used for football, it is not a head of cabbage anymore but a ball; in the card game, it turns into a kind of a notebook with pages that tear off. The object becomes dissociated in human thinking. The disintegration of the parts of the object either leads to making depthless decisions about possible transformations (that is, only separate nonsignificant elements become the subject of changes) or, vice versa, leads to the appearance of something new that probably features some similar external characteristics but is essentially different.

From my point of view, opportunities for qualitative transformation appear when the object is initially considered as a whole, so that it is not separate elements that become crucial but the principle of their holistic organization. Primacy of the whole over its elements is acknowledged by gestalt psychologists, from one side, and researchers working in the tideway of dialectical methodology, from another. One can find the following speculation in Arsenyev, Bibler, and Kedrov (1967, p. 210):

Creative thinking, founded on imagination, can be characterized as follows: the new always emerges as a whole, which later on forms its parts, deploying into a system. It looks as if thinking was “capturing” the whole before its elements, and this constitutes a typical feature of contentive [content-related] creativity.

Davydov (1996, p. 145) also emphasized that this characteristic of creative thinking remains almost unexplored in psychology, even though “when being developed ... imagination is an ability to ‘see the whole prior to its parts.’ And it is very important as a prerequisite for and one of the necessary conditions of the theoretical reproduction of reality. One can say that when imagination is considered from this perspective, it becomes one of the manifestations of theoretical thinking.”

Thus, immersing the discussion about mechanisms of creative transformation in the context of the problem of the relation of the whole and its parts leads to the necessity of distinguishing ways of transforming objects, which is inherent in theoretical and empirical thinking.

When it comes to understanding the process of development in the context of theoretical and empirical generalization, let us cite Davydov (1996, p. 87) again:

Envisaging the development process constantly demands demonstration of some result through the process that led to it (already completed!) and [demonstration of] the process through the expected result (not accomplished yet!). This is the only way to understand and comprehend real interconnections of single-unit objects within concreteness. ... Mediations and transitions actually present this internal movement, whose form is necessity, generality, i.e., internal completeness and “purity.” Such a reproduction can be performed by theoretical thinking only (all those “transitions and mediations” are in its element!), and its content (the specific type of connection of single units within the whole) cannot be restricted to any one sense.

Discussing the extent of absurdness that can be reached by empirical generalization, many authors have spoken of the possibility of comparing a raspberry bush not only to a blackberry bush but also to a turtle (Drobish, 1842). Lotse underlined that “cherries and meat can both be included in a group of red juicy bodies” (1874–

1879/1912, p. 324). These examples were ironically devised by scientists, but if we remember the aforementioned head of cabbage, it will become clear that this kind of scheme works when an object gets included in different and very unreasonable contexts element-by-element.

So, let us highlight the conclusion that can be reached at this stage of the discourse: flexibility of thinking taken in the sense assigned to it by Torrance has an empirical character. On that level of transformations, where qualitative argument and development are needed, creative thinking is obliged to be theoretical.

We can transform a contradiction only through comprehension of the principle of the organization of (a) that whole in which the contradiction emerged and (b) that whole we want to receive as the result of the transformation. However, on the level of theoretical generalization, various vectors of transformation become possible: the “new that emerges as a whole” matches the initial structure; however, the number of new essences appearing because of those transformations can be unlimited.

I suggest using the concept of the multidimensionality of thinking as a characteristic that describes the variability of qualitative transformations on a theoretical level of generalization. Multidimensionality of thinking provides variability of the transformations of a substantial contradiction in a problematic situation.

Multidimensionality allows seeing the same object on the borderland of different structures. This, among other aspects, provides an opportunity to configure a situation in a certain fashion: while being included in structure A, an object may be a weak link, but, once moved to structure B, it becomes a key to resolving the problem. Multidimensional thinking is characterized by a specific level of creative transformation of a problematic situation: it allows solving the problem, building structural relations between two or more formerly independent constructions, and, by this means, projecting a metaconstruction featuring much greater development capacity than the initial constructions had.

As mentioned above, the studies conducted within the framework of dialectical methodology are of distinct significance for this research project. I consider the structural dialectical approach in psychology as developed by N. E. Veraksa (2007, 2009, 2010) to be the most promising among all modern schools. Its major provisions are present in the works of Bayanova (2012), Belolutskaya (2011, 2013), Krasheninnikov (2005), Pashenko (2010), Rachkova (2010), I. B. Shiyan (2011), O. A. Shiyan (2008), A. N. Veraksa (2013), E. V. Vorobieva (2010), I. I. Vorobieva (2010).

Methodological elaboration of the qualitative distinctness and possible variants of dynamic structures in which transformation of contradictions can be developed — that is, operations of dialectical thinking—is the strong point of this approach. I consider the following operations to be of the most interest here: “change of alternative” and “dialectical mediation.” The structural dialectical approach understands a change of alternative as a transition from one pair of oppositions forming the essence of an object to another (Krasheninnikov, 2005). Mediation is a solution implying the discovery of such an object or phenomenon where given oppositions can coexist simultaneously (Krasheninnikov, 2005). From my point of view, complex implementation of the mentioned operations is the main mechanism for demonstrating multidimensionality as a characteristic of creative thinking.

These theoretical grounds became the basis of an empirical study whose goal was to verify the existence of correlative connections between such features of creative thinking as multidimensionality and flexibility; multidimensionality and dialecticalness of thinking; multidimensionality and the ability to use a scheme as an abstraction for analysis of specific content (which I consider one of the crucial features of theoretical thinking). Results of this study are presented below.

## **Method**

### ***Hypotheses***

In this study I examined a number of theories concerning the correlative connection of multidimensionality of thinking and other characteristics of creative productive thinking as follows:

There is a significant positive connection between multidimensionality of thinking and flexibility of thinking.

There is a significant positive connection between multidimensionality of thinking and the form of an operation of dialectical thinking such as mediation.

There is a significant positive connection between the multidimensionality of thinking and the ability of a person to use a scheme as an abstraction for analysis of various specific content.

A key goal of this study was to clarify the characteristics of the connections among multidimensionality, flexibility, and the theoretical nature of thinking.

### ***Participants***

A total of 85 people participated in the study. They were 15 to 17 years old, students at a senior school in Kaliningradskaya oblast, and winners of different stages of the all-Russian academic competition in physics, chemistry, and mathematics. All respondents had a high level of academic success and of general intelligence.

### ***Methodological toolbox***

The following techniques were used in this study:

The author's technique of diagnostics for the multidimensionality of thinking (hereinafter referred as DMT)

The author's technique "schemes and paintings," which was designed for diagnostics of the ability to relate abstract schemes and various specific content Torrance Tests of Creative Thinking (verbal battery) (Tunik, 1998)

A diagnostic technique for dialectical thinking: "What can be simultaneous?" (developed by N. E. Veraksa) (2007)

In order to perform statistical analyses of the collected data, the Pearson moment-product correlation coefficient and the Spearman range correlation coefficient were used. They match the aim of testing statistical significance in order to verify the hypotheses and to clarify the characteristics of the connections between the pairs of variables. The sample of 85 people was sufficient for calculation of both coefficients.

### ***Objectives and description of techniques***

For the purposes of this study I developed a method dedicated to the diagnostics of multidimensionality of thinking (DMT). The method consists of describing a problematic situation to be resolved by the respondent. In addition, the respondent is given a list of external circumstances that are not initially related to the problem. The task is to build a semantic metaconstruction (or several metaconstructions) that can become a solution for the initial problem.

The description of the situation does not provide any hint about a “correct” way of solving the problem—that is, it is a problem, not a task. In order to transform an abstract situation of tension into a chain of specific steps, the respondent mentally projects variants of possible constructions that can vary in content significantly but have similar structure. This structure represents the outcome of mental transformation, where external factors not connected to the initial situation start to be considered as resources and turn into potential “points of growth,” vectors of the development of the situation.

Here are the instructions given to the respondents.

*Dear participants in the survey!*

*We are conducting a study of specific acts of creative thinking in children, teenagers, and adults. Please read attentively the tasks below and give the most detailed answers you can. Responses should be in a free format and in writing.*

*Thank you for your participation!*

*Once upon a time there was a very talented man. He was 30 or maybe 40 years old. Maybe he had a family, maybe not. Maybe he went to an office every day, or maybe he stayed at home most of the time. We're not familiar with all these details. But for many years he had been painting wonderful landscape scenes. Friends and acquaintances often told him that he could feel nature and transfer its beauty to the canvas like no one else. His whole house was decorated with paintings, and he gave many of his masterpieces to friends, as he loved to meet with them. ...*

*But one day he realized that painting was his mission and the basis of his life. However, it's not that easy to become a real painter! It is one thing to paint for pleasure as a hobby and another to grow professionally, establish a career, make money, and promote oneself...*

***What advice would you give to our protagonist, who has made a serious decision to make painting his profession?***

*For reference:*

*The action takes place nowadays. The city where this man lives is a big industrial administrative center.*



*This morning he opened a newspaper and became aware of some of the latest city news, in particular:*

*(1) The level of unemployment increased 20% compared with the previous year. The general level of the life of the population continues to decrease.*

*(2) Demonstrations of ecoactivists against air pollution in the city are becoming more and more aggressive. Yesterday they were picketing an oil refinery, police had to intervene; some demonstrators were injured, and some were detained.*

*(3) A bill before the city council proposes a ban on recreational hiking in forests because of frequent fires. It continues to be very hot.*

*(4) The three top projects in a competition of young scientists were the following:*

- Technology that significantly lowers the cost of 3D printing. This technology can be used for domestic purposes and in the printing industry, and it is also possible to use it to print books with volumetric illustrations.*
- Technology that reduces by almost two times the cost of running electric cars (cars working on electricity, not petrol).*
- Technology that reduces the cost of diagnosing medical diseases by inserting into the body a scanning microrobot.*

*(5) Our protagonist was surprised to see a picture of a former classmate in the high-society news section. The article revealed that she had married a famous city businessman, quit her job, and started writing children's books under a pen name. Unfortunately she had recently given birth to an ill child. In the interview she claimed her intention to fight for his health by all means and, even more, to do her best to provide decent treatment for other children with the same diagnosis. A well-known doctor commented on this news and proposed reducing the concentration of heavy metals in the atmosphere as the best preventive measure against such diseases.*

*(6) The city football team easily won the national championship with an amazing score, although the goal keeper claimed that he had decided to leave his profession because of his age.*

*(7) Inhabitants of big apartment blocks now have the right to make renovations in their entrance halls without informing city authorities.*

*(8) Volunteers collected within a week three trucks' worth of food and warm clothes for the victims of flooding in neighboring villages.*

*(9) A famous foreign band will visit the city as a part of their current tour.*

*(10) On the eve of mayoral elections the city budget for social expenses was increased, including money for the following items:*

- Creation of tourism venues that would appeal to children*
- Encouragement of children's artistic creativity*
- More children's sport activities*
- Projects that would increase the cultural level and patriotism of citizens*

*Please propose several options for further action by our protagonist.*

This problematic situation is related to professional mission and choice of a way in life. The situation is based on a possible transformation of the protagonist's painting as a hobby into painting as a profession, instead of simply changing his profession, for example, from driving to sales. Obviously, in such a situation the protagonist has to invent and undertake a number of projects because if he immediately leaves his job and starts to produce paintings for sale, he will have a high probability of failing. A change of professional direction, especially to such a creative occupation, is always fraught with many risks, both economic and personal. However, such factors as internal calling, the sensation of the correctness of the existential choice, and psychological comfort are important. A successful resolution in this case must (a) preserve the initial goal of becoming a professional painter and (b) transform the situation in such a way that external conditions become not an obstacle but a source of development.

The "news" gleaned by the protagonist is actually a set of factors that (a) are not related to his internal problem, (b) create a background that is either unfavorable or neutral for the protagonist, (c) have relevance for him in the sense that, for example, they are city, not international, events, (d) cover various areas, being rather a patchwork than a system, so that the respondent has to construct connections. The current situation in the city is, certainly, fairly disadvantageous for a risky project such as replacing a stable job with creative profession: the level of life is decreasing while unemployment is increasing; there are many ecological problems and general tension.

The objective of this technique was to find out (a) to what extent the respondent can transform unfavorable conditions into resources while preserving the initial goal, not another one, and (b) how diverse the proposed project solutions are—that is, how many independent lines of development of the situation a respondent can construct based on the different factors listed above or, perhaps, on other factors suggested by the respondent.

Each solution of this problem that was based on different factors gained 1 point. Respondents did not get any points if they (a) described a way of "escaping the problem" (continue painting as a hobby, move to another city where "rich and wealthy people live"), (b) described a successful ending without revealing how it could happen ("protagonist left his work, started selling his paintings, and lived happily and harmoniously ever after"), (c) proposed solutions that were based on the given factors but did not resolve the initial problem or replace it with another one. For example, "the protagonist will paint banners for ecoactivists and together they will improve air quality in the city" or "he will paint good pictures for the ill kid of his classmate and the baby will get better" or "he sells all his paintings to the classmate's husband and gives that money to flood victims."

Thus, the minimum number of points received by a respondent was 0, while the maximum score was theoretically unlimited because respondents were given an open question. The highest score gained by one respondent in this study was 8.

This is an example of an answer that got 8 points (R. L., 15). "Our protagonist could start by organizing workshops for children interested in creative arts (1 point); he could also paint the house entrances (1 point). That way he would be noticed by the local government, and he might be mentioned in the newspaper. Then he could get in touch with his classmate and the ecoactivists. He could start

painting 'before' and 'after' landscape scenes, showing how nature looked before and how it will look later if the factory is not closed down (1 point). His classmate is highly interested in shutting the factory because of her child's disease, so she could finance the painter and his assistance for ecoactivists (1 point). When the factory finally closes down, the situation with tourism will improve, so visitors coming to the city will attend his exhibitions and buy his works; he will be a local celebrity by this time (1 point). He could also hold an exhibition and an auction to help the victims of the flood. It's not a way to make money but is good marketing (1 point). He could promote himself by illustrating books and propose making paintings for 3D printing to the guys who won the grant (1 point); later he could use this work for his classmate's books. At the same time, he could make nice T-shirts for the concert of the foreign band or work as a stage decorator for them (1 point). Thus his 'all-round ad campaign' would be complete, and after that it's just a matter of doing the 'paperwork.'"

Notice that this respondent constructed solutions for professional promotion of the painter based on various factors. The respondent did not just fantasize about a trouble-free future or, conversely, about a gloomy future for the protagonist. The respondent's solutions were instead created through the transformation of neutral or negative conditions into conditions for development of the situation.

For comparison, here is an example of an answer that was not worth any points (G.O.A., 16). "I think that the painter has to earn his livelihood through his art in any case. If he works this way he will feel pleasure in doing his job. In a few years he will be able to start up his gallery and so make money." This answer is not grounded in external factors and proposes no steps for development of the project. In contrast, the next example, which also received no points, does mention external factors: "The protagonist should wake up, have his breakfast, think it over, and realize that no one needs him or his paintings in that place. It is a depressed industrial city with bad ecological conditions and a low level of life. So he should go to work as an accountant or slash his wrists" (M.B., 16). But this respondent made no attempt to turn these factors into something positive and instead perceived them as threats.

The technique known as "schemes and paintings" was developed and tested in thesis research (Belolutsкая, 2011) conducted at Moscow State Pedagogical University (faculty of psychology and education) and Moscow school #1716; there were 104 respondents in total. The tools for this method are a blank sheet for answers and an album with stimulus material. The stimulus material consists of (a) a page listing 5 schemes of different actions of dialectical thinking described in the works of N. E. Veraksa (2009): transformation, mediation, integration, seriation, termination (in order to make the scheme comprehensible to the respondents, its elements are presented as squares of black, white, and gray, and arrows indicate opposition and sequence), and (b) 6 sheets with small reproductions of paintings by famous artists (12 pieces): M. C. Escher's *Bird Fish*, V. Serov's *Abduction of Europe*, M. C. Escher's *Drawing Hands*, Leonardo da Vinci's *Last Supper*, M. Vruble's *Swan Princess*, S. Dali's *Three Sphinxes of Bikini*, V. Vasnetsov's *Sirin and Alkonost*, the *Birds of Joy and Sorrow*, Raphael's *Garvagh Madonna*, M. Vruble's *Demon Seated*, V. Vasnetsov's *Alenushka*, V. Vereshchagin's *Apotheosis of War*, Leonardo da Vinci's *Vitruvian Man*. Here are the instructions:

*Dear participants in the survey!*

*We are conducting research on specific acts of creative thinking in children and adults and would appreciate your collaboration.*

*You will find 5 schemes on page 2 and on pages 3–8 paintings by famous artists are reproduced (light copies). Some schemes and paintings express the same idea, or one scheme can match several paintings. Please relate schemes and paintings and provide explanations for why you have chosen those and not others. Try to explain each case with a maximum of details. If you think that some schemes do not match any paintings, please explain your opinion.*

*Write your answers on the blank sheet.*

*Do not rush, and please remember that there are no correct or incorrect answers.*

The technique “schemes and paintings” was designed to (a) reveal the ability of a person to use a scheme as an abstract principle of the organization of a whole and (b) record the variety of concrete content that a respondent could “insert” into a scheme. The ability to use a scheme as an abstract explanatory principle for the analysis of content is one of the signs of developed dialectical thinking, which is, as mentioned above, a basis for the presentation of multidimensionality.

The stimulus material was selected on the basis of the following criteria:

- 1) Schemes of dialectical mental actions are a graphic representation of dynamic and developing structures, not formal, static ones. The ability to analyze some content using such schemes is indicative of the multidimensionality of thinking, which, in turn, appears in the moment of transformation, the moment of the mental restructuring of a problematic situation.
- 2) Paintings of outstanding artists are rich material that, on the one hand, gives ground for various semantic interpretations but, on the other hand, is normally clearly structured in order to report the artist’s ideas and conceptions. We chose two types of paintings for our stimulus material: (a) those with both visually presented two-sidedness (Escher’s gravure with birds and fish, the *Swan Princess*, *Sirin and Alkonost*, the *Abduction of Europe*) and cyclicity (Escher’s hands drawing themselves, Leonardo da Vinci’s drawing *Vitruvian Man*); (b) those depicting one protagonist or object (*Demon Seated*, *Alenushka*, *Apotheosis of War*).

On the one hand, the paintings in the first group facilitate the task for respondents (lead them to see what can be represented by black and white squares in a scheme), but, on the other hand, they are a trap because they can provoke various empirical variants (“the arrows go in a circle in the scheme and *Vitruvian Man* is also located in a circle”).

The paintings in the second group seem to be more complicated for analysis through binary organized schemes, but they evoke deeper content-related interpretations normally related to the internal conflict of the protagonists.

The following interpretation criteria were used during data processing:

- How is the essential (abstract) understanding of the scheme as a means of analysis demonstrated by the respondents? Is it clear from their explanations that they see a system of relations “behind” black and white squares and arrows without adherence to specific geometrical form or color range?
- Can the respondents apply the scheme to the content of different paintings as an explanatory principle?

To simplify the processing of results, we developed the following system of allocation and calculation of points.

Respondents received 0 points if:

- Their explanations for the choice of paintings had nothing to do with the scheme. Either they did not answer directly—“It seems to me that...”—or their explanation was based on their emotional perception of the paintings—“I like these paintings, that is why I choose them.”
- They matched a scheme and a painting because of random external similarity: “Here are two squares and there are two dolphins” or “the gray, white, and black squares make a triangle and in Raphael’s picture the Madonna and two babies form a triangle too.” Such answers failed to meet the requirement set in the instructions: “to express *the idea* of the scheme through the painting.”
- In their interpretation of a scheme they did not specify the content: they confined themselves to such explanations as “both in the picture and in the scheme all elements are interconnected” or “the gray square affects the two below, and Christ influences all the people sitting at the table.”

All these explanations are typical of empirical thinking.

Respondents received 1 point for every solution in which (a) the scheme was understood abstractly as a consistent principle of the organization of specific content, or (b) they could discover a meaningful system of relations of oppositions, transformations of one opposition into another, or the development of cyclicity behind the graphic elements. Solutions of this kind reflect theoretical thinking. Notably, if a respondent claimed that “scheme 1 reflects oppositions and therefore matches paintings 1,3,10 because good and evil are opposed there,” such a judgment got 1 point despite several pictures being mentioned. In this case the respondent filled the scheme with only one content-related meaning—“good is opposite to evil.” But if the respondent said that “scheme 1 reflected oppositions, therefore it matches paintings 1,3,10 because good and evil, beauty and ugliness, life and death were opposed there,” that answer received 3 points, as the scheme was filled with diverse content.

Therefore, the minimum number of points received by a respondent was 0, while the maximum score was theoretically unlimited. The highest score gained by one respondent in this study was 5.

Here are examples of answers that received points:

- The idea of scheme 2 (mediation) is expressed in painting 7 (Vasnetsov, *Sirin and Alkonost, the Birds of Joy and Sorrow*) because both Sirin and Alkonost are present there, opposing each other (they are personifications of joy and sorrow), and their song is the gray square because it unites the one and the other.
- The idea of scheme 4 (conversion) is expressed in painting 1 (Escher, *Bird Fish*) because the gray square is a person who has a choice—to fly up to the sky as a bird or to dive into the darkness [of the sea] as a fish.
- The idea of scheme 3 (seriation) is expressed in painting 1 (Escher, *Bird Fish*) because it shows the transition from one opposition to another (from a bird to a fish), just as the scheme does.
- The idea of scheme 3 (seriation) is expressed in painting 1 (Escher, *Bird Fish*) because it shows a gradual transition from catch (fish) to hunter (bird).
- The idea of scheme 3 (seriation) is expressed in painting 1 (Escher, *Bird Fish*) because one can imagine that the evolution of life on Earth was reproduced there.
- The idea of scheme 4 (conversion) is expressed in painting 4 (*Last Supper*) because the scheme represents the choice between good and evil made by Judas when he passed to the “dark side.”
- The idea of scheme 5 (double mediation) is expressed in painting 3 (Escher, *Drawing Hands*) because the scheme represents various phases of cyclicality that are also reflected in the picture—the hands are drawing each other.
- The idea of scheme 3 (seriation) is expressed in painting 5 (Vrubel, *Swan Princess*) because it shows the transition from one state into another—the girl is turning into a bird.
- The idea of scheme 3 (seriation) is expressed in painting 2 (Serov, *Abduction of Europe*) and painting 11 (Vereshchagin, *The Apotheosis of War*) because in painting 2 the ox is taking the girl from the world of good to the world of evil (a smooth transition between oppositions), and in painting 11 everything started with a small conflict but resulted in a lot of blood, death, and devastation.
- The idea of scheme 1 (transformation) is expressed in paintings 3 (Escher, *Drawing Hands*), 7 (Vasnetsov, *Sirin and Alkonost*), 11 (Vereshchagin, *Apotheosis of War*), and 5 (Vrubel, *Swan Princess*) because all of them contain oppositions that conflict with each other but also transition into each other: real and drawn hands, joy and sorrow, life and death, a girl and a bird.

Thus, the schemes were interpreted by these respondents as an abstract principle by means of which it's possible to organize various specific kinds of content.

For comparison, here are answers that did not receive any points:

- The idea of scheme 1 is expressed by painting 1 because the scheme has only two colors, same as the painting.



- The idea of scheme 3 is expressed by paintings 3,8,12 because they also have a gradual transition of colors.
- The idea of scheme 5 is expressed by paintings 3,6 because the painter has depicted several similar people interacting with each other.
- The idea of scheme 5 is expressed by painting 12 because Vitruvian man looks like Zeus and there is an arrow looking like lightning in the scheme.
- The idea of scheme 4 is expressed by painting 8 because two babies are reaching out for mother, and their hands look like arrows.
- The idea of scheme 1 is expressed by painting 3 because it shows the interaction of objects depending on each other.

Such answers indicate that the respondent perceives a scheme not like an abstraction but empirically, as a drawing that requires another drawing by analogy.

The technique “What can be simultaneous?” was explicitly described by Krashennikov (2005). It is focused on diagnostics of an action of dialectical thinking such as mediation. Respondents name objects that could be simultaneously black and white, alive and not alive, big and small, light and heavy, fast and slow. One can call their answers productive solutions when the instructions are met completely—that is, when the object named can really be characterized as having opposite features (gray color, a person in anabiosis, yoga in deep meditation)

To measure flexibility of thinking the verbal battery of the Torrance Tests of Creative Thinking was used, but results were calculated only for the parameter flexibility and not for elaboration, fluency, and originality. From my point of view, the verbal battery is an “empirical analog” of the multidimensionality of thinking: it makes correlation analysis reasonable.

## Results

The Pearson moment-product correlation coefficient and the Spearman method were used for mathematical processing of the data. To confirm the hypotheses the correlation coefficients were calculated between the following parameters:

- 1) Flexibility of thinking (Torrance test) and multidimensionality of thinking (DMT technique);  $r_{xy} = 0.391$  when  $n = 85$ , the coefficient was significant with the error probability less than 1%.
- 2) Dialectical thinking (technique “What can be simultaneous?”) and multidimensionality of thinking (DMT technique);  $r_{xy} = 0.210$  when  $n = 85$ , the coefficient was nonsignificant;  $r_{xy} = 0.261$ , the coefficient was significant with the error probability less than 1%. The first coefficient was calculated using the Pearson moment-product correlation coefficient; the second was calculated using the Spearman method.
- 3) Multidimensionality of thinking (DMT technique) and the ability to use a scheme as an explanatory principle of specific content (“schemes and paintings” technique);  $r_{xy} = 0.271$  when  $n = 85$ , the coefficient was significant with the error probability less than 1%.

Consequently, we can state that the hypotheses were empirically confirmed. For the first and third hypotheses the correlation coefficients were significant when calculated by both the Pearson and the Spearman methods. For the second hypothesis, a significant correlation coefficient was received only by means of the Spearman method.

Confirmation of the existence of the correlations confirms the assumption that the parameters of thinking studied can in aggregate be considered an integral characteristic of human thinking. This characteristic allows us to distinguish significant features of a situation from secondary features—that is, to see a substantial contradiction and to propose several options for its transformation.

## Discussion

When analyzing the significant correlations, one should keep in mind the following points.

First, I consider the discovery of a positive connection between the multidimensionality of thinking and the ability to use a scheme as an abstraction for analysis of specific content absolutely vital. I regard this correlation as an argument in favor of the idea that multidimensionality is a characteristic of theoretical, not empirical, thinking (Davydov, 1996). This statement is subject to further experimental examination, but already one can predict that people who master a scheme as an analytical means will be successful in completing tasks that require keeping hold of a problem, in taking many diverse factors into account, and in building constructions of possible transformations of problematic situations. Exploration of the specifics of the connection of the factors mentioned is a possible line of further productive studies on thinking. These data are of practical value in general and professional education as well as in courses dedicated to the development of productive thinking.

Second, the appearance of the concept of the multidimensionality of thinking became possible only in the midway of the structural dialectical approach in psychology. Dynamic structures, processes of development, and transformations are the subjects of studies within this approach. If people can build a metaconstruction with a development capacity higher than that of the one they initially had, they have a blueprint of the structure of qualitative transformation. A qualitative transformation is any development phase deployed in accordance with dialectical structure. From this perspective the discovery of a connection between the multidimensionality of thinking and the use of dialectical mediation is quite explicable: in order to see potential points of growth in unfavorable factors, one needs to execute the action of “changing the alternative,” and in order to execute a project decision, one needs the action of mediation.

Third, the direct connection between the multidimensionality and the flexibility of thinking is logical and expected. However, multidimensionality is a more complex feature than flexibility. We can anticipate that increasing the level of multidimensionality will cause an increase in flexibility, but the reverse is highly unlikely: even if one trains flexibility of thinking, it will not transform into multidimensionality.

Thus, this study succeeded in producing empirical evidence confirming the connection of such important characteristics of thinking as multidimensionality, dialecticalness, theoreticalness, and flexibility. The character and qualitative specifications of those connections are a subject for further experimental research.

## **Conclusions**

This study produced empirical evidence confirming the direct correlative connection between the multidimensionality of thinking and the following features of creative, productive thinking: flexibility, dialecticalness, and the ability to use a scheme as an abstract explanatory principle for specific content.

Examining these research results and those of previous studies reveals that they follow the logic not only of Russian authors (for example, Belolutskaya, 2011) but also of foreign scientists. For example, Paletz and Peng (2009) have also explored the connections among creativity, dialectical thinking, and the ability to discover a problem. Originality and relevance were taken as criteria of creativity when dialectical thinking was measured by means of the Spencer-Rogers Dialectical Self Scale. Discussing their results, the authors underline the highest importance of studying the connection between creativity and dialectical thinking. In the framework of cross-cultural research they revealed a positive connection between an index of the originality of solutions and dialectical thinking in situations with a high extent of contrariety. However, at the same time they discovered the huge role of the factor of cultural belonging. The connection of creativity and dialecticalness of thinking is much more complicated than is commonly thought. For instance, this study revealed a positive correlation only for a sample of Americans of European origin and only with one parameter of creativity.

Yang, Wan, and Chiou (2010) also examined the connection of all the parameters of creativity and dialectical mental attitudes but used different diagnostic techniques—the Social Paradigm Belief Inventory (Kramer, 1992) and the Divergent Thinking Test (Lin & Wang, 1994). The measurements demonstrated significant positive connections between dialecticalness and creativity on all parameters in a sample of Taiwanese citizens.

Many Russian and Western researchers regard dialectical thinking as a determining factor in higher intellectual creativity. Furthermore, some authors view dialectical thinking as a concept that may replace creativity. In particular, Arlin (2011, p. 386) have stated:

New measures and assessments of postformal and dialectical thinking have contributed to the progress made in the study of advanced forms of adult thinking. There is no parallel development of ways to assess mature creative thinking. Even the most recent assessments rely heavily on Guilford's "structure of the intellect" model of 1967 and Torrance's translation of a subset of these factors into a set of divergent thinking tasks. What is needed to propel this research forward are well developed postformal measures of creativity. Paletz and Peng have recently taken a step in this direction.

The usefulness of this study lies in the further theoretical and experimental development of the notion of multidimensionality of thinking. From my point of view

it is a concept that can allow serious advancement in the exploration of mechanisms of intellectual creativity through the integration of strengths of the concept of creativity and the structural dialectical approach. My colleagues and I are going to continue working on diagnostic techniques focused on measurement of the multidimensionality of thinking. This work, in turn, will contribute to the construction of an experiment for establishing the connection of multidimensionality and other psychic attributes, particularly the ability to resolve problematic situations of various types with a strategy of projection and transformation.

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## SOCIAL PSYCHOLOGY

### **Migration as an indicator of people's social and psychological stability (as exemplified in the Pskov Region)**

Svetlana D. Gurieva\*, Svetlana N. Kostromina, Larisa A. Tcvetkova,  
Irina A. Samuylova, Aleksandr G. Konfisakhor, Tatyana V. Anisimova

*Saint Petersburg State University, Saint Petersburg, Russia*

\*Corresponding author. E-mail: gurievasv@gmail.com

Years of social, economic, and political changes have resulted in intensive and extensive migration activity. The appearance of compelled and voluntary migrants has brought about the development of a new direction in social psychology: the psychology of migration. Many disciplines are connected with the study of migration, the problems of migrants, and adaptation processes. In the social-psychological literature, various models of adaptation to new conditions of a social-cultural environment are considered (I. Jasinskaja-Lahti, K. Liebkind, J. Berry; S.-K. Lee, J. Sobal, E. Frongillo). Various social-psychological features of migrants are studied: for example, ethnic identity, characteristics of psychological adaptation, emotional well-being, and mental health. In the Russian scientific literature the following problems are considered: emigrants' interactions with representatives of foreign cultures (N. S. Khrustaleva), degree of cultural similarity (T.G. Stefanenko), personal features of emigrants (S. H. Schwartz, E. Prince-Gibson), features of ethnic identity (G.U. Soldatova, S. D. Gurieva), and many others. In Russia, research regarding the influence of the social-cultural environment on processes of adaptation were begun only in 2004.

The main objective of our study was to identify psychological mechanisms of migration flows (incoming and outgoing) as indicators of sociopolitical and psychological stability in the Pskov Region. Participants in the study were citizens permanently residing in the Pskov Region who by age and social characteristics represented the population structure of a part of that region. In total, 52 persons aged 17 to 69, with an average age of 42.3, participated.

The technique used was focus groups. A content analysis was made of the answers received in the focus-group sessions. During these sessions, participants could freely share their views on questions asked by the facilitators who had a college-level psychological education. In each group, two facilitators worked cooperatively. One facilitator was in charge of group dynamics; the other was in charge of asking all the questions covered as well as of keeping track of all the substantial aspects of the conversation. This arrangement encouraged the participants to discuss issues of the region in an open manner.



The findings allowed us to classify all the migrants and potential migrants in the Pskov Region according to their reasons and motives for migration. For example, in the Plyussa settlement, which is “depressed” and remote from the region’s center, migrants seek to escape their extreme poverty and unemployment; they can be called “survival migrants.” In the “favored” central area, the city of Pskov, migrants seek to significantly increase their income level and improve their quality of life. We can describe them as “migrants seeking new opportunities.” In a border area, the town of Gdov, people living in close proximity to other countries (Estonia, Latvia) compare their financial situation and opportunities with those of their foreign neighbors. Migrants living in Gdov tend to move because they want to avoid an environmental crisis or progressive degradation of the environment, structural unemployment, and poor economic opportunities. We can call them “migrants in search of hope and prosperity.”

In the Pskov Region, the labor (economic) situation is a typical reason for migration. Migration for economic reasons is a resettlement of people for the purpose of employment and proper remuneration. Labor migration can have such causes as a desire to change one’s job, as well as sociocultural, housing, environmental, nature, climate, and other conditions. Without a developed economy and social sphere, regions are able to prevent only elderly or incapacitated people from migrating. To retain the younger generation, it is necessary to inform people of all the possible difficulties that potential migrants may face and to make systematic and large-scale efforts to develop the region, to improve the image of the region (including encouraging the residents to be proud of and to cherish the region’s heritage and its people’s achievements), and to create a comfortable environment.

**Keywords:** migration processes, reasons for migration, potential migrants, the Pskov Region.

## Introduction

Migration continues to be one of the most pressing and difficult issues in global society and in Russian society in particular. Places of military, political, and economic instability face economic problems, the destruction of a traditional way of life, growing tensions, and people’s uncertainty in regard to the future. All these factors facilitate the growth of migration flows.

The academic corpus of literature contains numerous works on migration. The first academic definition of *migration* was given by Ravenstein (1985, p. 168).

[Migration is] a permanent or a temporary change of place of residence by a person; [this is] a continuous process depending on the interactions among four main groups of factors. They are factors that influence a migrant’s initial place (country) of residence; factors that influence the stage of a migrant’s move; factors that influence a migrant’s destination (country); factors of a personal nature, which include, primarily, a system of personal preferences, a totality of personal demographic characteristics.

Most articles about migration refer to the acculturation of migrants and acculturation modeling (Berry, 1992; Khrustaleva, 1996; Gurieva, Kinunen, 2006; Pavlenko, 2001); the ethnic identity of migrants (Gurieva & Kinunen, 2006; Lebedeva, 2001; Pavlenko, 2001; Stefanenko, 1999); the dynamics of migration and adaptation issues (Belinskaya & Stefanenko, 2000; Hutnik & Barrett, 2003; Jasinskaja-Lahti, 2000; Schwartz, 1992), along with many other aspects of migration. However, there

are significantly fewer articles on the psychology of potential migrants (Gurieva & Kinunen, 2010; Liebkind, 2001; Mirsky, 2001; Tartakovsky, 2007; Zilber & Lerner, 1996). There are no social, psychological, or sociological articles that compare different types of potential and actual migrants or forced and voluntary migrants or that identify migrants' common and specific characteristics depending on the environment of their place of residence in a single administrative entity within the boundaries of the single environment of the Russian Federation.

In today's ever-changing Russian society, there have been changes not only in the types and direction of migration but also in the characteristics of the migration processes: conditions and types of migration, social and psychological characteristics of migrants, factors determining their successful adaptation and acculturation, their motivation, their features, and many other social, demographic, and psychological characteristics. Therefore, the issues that have been researched are not the kinds of migration, their stages and types, for example, but, instead, the main causes of migration. For example, ethnic migration is known to be a consequence of interethnic conflicts, ethnic tensions, ethnic discrimination, and lost social and cultural identity by a certain part of the population. Labor migration can be a consequence of a deep economic crisis, social and economic instability, lost jobs, and increasing poverty and unemployment within a complex political situation in general.

Migration can take two forms: forced and voluntary. The most difficult for regulation are forced forms, as they have a spontaneous and massive character; they transform the existing structure of the society. Voluntary migration is generally the more regulated process. It is neither massive, nor natural; it is partially distributed in time. With voluntary migration, structural components of the society survive instead of being transformed (Table 1).

**Table 1.** Natural and forced migration

Natural			Forced		
Migration is partly regulated, time-distributed			Migration has explosive, burst-type character		
Structural components of the society survive			Structural components of the society are transformed		
Migrants are professionals	Migrants are adaptive	Migrants are independent	Migrants go through deprofessionalization	Migrants are nonadaptive	Migrants are dependent

In the academic corpus, as part of the research on migrants' motivation, the theory of "push and pull" (push/pull factors) has appeared; this theory was proposed by Lee (1966, pp. 47-57). It explains the main cause for migration as a combination of push factors, which encourage people to leave their places of origin, and pull factors, which are attractive to people in other regions. The push factors include high prices, a low living standard, poor economic opportunities, political repression, and structural unemployment at the place of departure. The push factors may also include a threat to the life or health of potential migrants or family members and psychological dissatisfaction. The pull factors include a demand for labor, employ-

ment opportunities, broad economic opportunities and high wages rates, political freedom, safety, psychological well-being, and a comfortable environment.

Depending on where one moves to, migration is internal or external. The simplest definition of these types of migration is the following. Internal migration is the movement of people within their area or their region, or movement to a new location within the same country. External migration is movement outside one's country. Population migration is the clearest and most accurate indicator in today's society of the socioeconomic well-being, political sustainability, and socio-cultural attractiveness of a region, province, or country in general. As Berger and Luckmann (1966) said, migrants are people who actively construct social reality for themselves and others (1966, p. 194-195). "Tracking beliefs, evaluations and intentions of people, influencing them, and then adjusting (according to results) a strategy for one's actions, one may secure sustainable development" (Zakharov, Voronin & Zakharov, 2014, p. 26).

## Method

### *Background*

Today, an important and indispensable element of the stabilization and further development of any country, any region, any city, or any area implies not only an available, strategically-oriented program aimed at improvements in the quality of people's lives but also an opportunity to implement this program in the lives of real people. For this very reason, we need not only to consider psychological criteria but also to have a deep understanding of ongoing socioeconomic, sociopolitical, and cultural changes and transformations. In Russia today, as exemplified by the Pskov Region, authorities have implemented the Strategy for Social and Economic Development. This strategy is aimed at understanding ongoing social changes, including migration changes.

The demography of the Pskov Region has been among the most unfavorable of all Russian regions. Manakov and Krivulya (2012, p. 76) list three main reasons for the current situation in the Pskov Region.

Firstly, for the last two decades, the Region has been an undisputed national leader in terms of population mortality and natural wastage indicators. Secondly, since it received its borders, the Pskov Region has only lost population. Thirdly, in 1966 the Pskov Region became the first Russian region where the death rate exceeded the birth rate, i.e., a quarter of a century earlier than in the country as a whole.

Compared with other regions in the Russian Federation, the Pskov Region is ranked below average in quality of life. The region ranks 59 out of 83 in the ratio of the average wage to the cost of a fixed consumer basket. Typical wages are low; there is almost no high-income population (less than 1 per cent). Transport to other cities is accessible via four major highways and five rail routes. Pskov Region shares three external borders with neighboring countries and four internal borders with other regions (Rosstat, 2013).

Given its specific location and socioeconomic segmentation (three specific areas: border, central, and remote), Pskov Region is a major platform for understand-

ing the social and psychological processes that take place against the background of socioeconomic changes. In addition, the underlying problems of the socioeconomic development of the region are typical for many Russian regions (Evdokimov, 2010): depopulation because of high rates of migration; a large portion of the population above the working age; a low standard of living; a low level of economic development; poor fiscal capacity; concentration of the economic and social activities of the population mainly around key support centers (the cities of Pskov and Velikie Luki), with a developed system of towns and settlements in place.

For the purpose of discussion, we have isolated three areas in the Pskov Region based on an analysis of its unique location, its remoteness from large cities, its three adjacent outer borders, its major highways, its growth in migration outflow and inflow, and its ratio of residents to visiting population. The three areas we have identified are: depressed, border, and favorable. Names for the areas are given for the purpose of discussion and depend on the influence of the following factors: level of migration flow (both external and internal); uniform or nonuniform distribution of the population within the region; location of administrative, medical, educational, and other facilities; their distance from settlements; available cultural, shopping, entertainment, and central industrial facilities.

For example, for a depressed area/district (in particular, Plyussa settlement) the following features may be typical: a low fertility rate, a high mortality rate, an excess of deaths over births, a high level of outmigration, an unbalanced workforce, a negative migration balance, a high elder (aging) population, undeveloped (neglected) infrastructure, not enough road networks, a high unemployment rate, alcoholism.

At the same time, for the border municipalities (like the town of Gdov) the following features are typical: a continuing increase in the birth rate; a high level of intermarriage and, possibly, of divorce; simultaneous mixing of two streams: a migratory outflow of the local population (with prevailing sporadic, seasonal migration) and a migratory inflow of visiting people from other Russian regions, the CIS and non-CIS countries, Central Asia (Uzbekistan, Tajikistan, Kazakhstan), China, Vietnam. The migration balance is positive, perhaps because of migration from Central Asia. For border areas, typical factors are the increasing socioeconomic differentiation of the society, unequal distribution of wages between employed locals and visitors (higher wages for army personnel compared with those for civilians, an opportunity for those in the military to get more qualified medical assistance), unequally distributed social benefits.

Finally, for favorable municipal areas (like the city of Pskov) the following features are typical: an increase in the birth rate, high population growth, many economic and cultural centers (shopping, entertainment, sports), a high and stable level of income, a number of people with a college education, a relatively low unemployment rate, stabilization of migration outflow, regulated migration inflow, wage rates and social benefits that are relatively high for the region.

### ***Purpose***

Our research looked at the current state of migration processes in the Pskov Region in order to understand the true state of the issue and to identify the main causes for migration. A main objective was to identify psychological mechanisms in migration flows (incoming and outgoing) as indicators of the sociopolitical and

psychological stability of the region. In addition, the opportunity to control migration flows contributes to reasonable and appropriate managerial decisions aimed at successful implementation of the Concept of Socioeconomic Development of the Pskov Region through 2020. It should be noted that the Concept of Socioeconomic Development of the Pskov Region is one of the main directions of development the various regions of modern Russia.

### **Participants**

Participants in the study were citizens permanently residing in the Pskov Region who by age and social characteristics represent the population structure of the part of the region under consideration. In total, 52 persons aged 17 to 69 participated; their average age of 42.3.

### **Subject of research**

The research solicited the views of the participants, their ideas and philosophy (conscious and unconscious), judgments and opinions on migration issues in the Pskov Region.

**Table 2.** Key questions

N	Question	Purpose of question	Possible directions for answers
1.	Which statement do you most agree with? Everyone has a right to live where (s)he wants. You get worn out in the place where you were born.	Identify prevailing migration philosophy in society, number of actual and potential migrants	Attitude to those who have left, attitude to those who are going to leave, own plans regarding migration (or lack of them), willingness to move and relocate, preferred migration destinations
2.	Why do you think people migrate?	Identify major causes for migration; determine which of three main motives for migration prevails: survival, self-development, materialism	Personal safety and well-being; opportunities for development, training, career; financial security; improved quality of life; opportunity to earn more
3.	For what reasons would you leave the Pskov Region? Where would you go?	Identify push factors contributing to a growth of migration in the region; indicate the most preferred destinations for migration from the region	Financial well-being, opportunities for self-development and children's development, increase level of education, psychological satisfaction, ecology
4.	What attracts you to other regions, cities?	Identify factors of attraction to other regions that encourage migration from the Pskov Region	Demand for workforce, high standard of living, economic opportunities, social benefits, cultural life and leisure activities, a right to freedom of movement
5.	What could prevent you from leaving the Pskov Region?	Identify factors that cause people to stay at a given time and in the long term	Hope for possible changes in the region in the future, understanding of the difficulties and troubles related to migration; patriotism and love of homeland, of one's own territory, area

## Methods

Participants' views on migration issues were collected in focus groups. A content analysis was made of answers given in the focus-group sessions. In these sessions, participants could freely share their views on questions asked by the facilitators, who had a psychological education at the college level. In each group, two facilitators worked cooperatively. One facilitator was in charge of the group dynamics; the other was in charge of covering all questions as well as of keeping track of all substantial aspects of the conversation. The psychological atmosphere in the focus-group sessions was comfortable. It encouraged the participants to discuss issues in an open manner. It did not prevent them from spontaneous (true, unconscious) behavioral responses that demonstrated true emotions, feelings, and moods. Five questions were asked with recommended directions for answers to them (Table 2).

## Results

The ideas of respondents from a *border area* were gleaned from residents of the town of Gdov. Gdov (like other border towns in the Pskov Region) has typical kinds of migration, such as labor migration and commuting migration (regular transfers of the population between two or more areas without a change in their place of residence for reasons of employment, training, or vacation). In this border area, the main reasons for people to migrate and leave their homes are unemployment and a wage rate below the subsistence level (because of the destruction of infrastructure and the devastation of farms and industrial complexes that once existed in the area. People have nothing to do, nowhere to go (no cultural, sports, shopping, or entertainment facilities), and poor transportation to other areas (which leads to a sense of social and psychological isolation, a sense of abandonment). In line with the well-known theory in the scientific literature regarding push and pull factors, the push factors include a low standard of living, poor economic opportunities, structural unemployment, and psychological dissatisfaction. The pull factors are the better economy in attractive nearby foreign countries (Estonia and Latvia, with which the Pskov Region has borders) and the psychological similarity of these areas.

However, there are also constraining factors. The question "What could prevent you from leaving the Pskov Region?" engendered the following answers: no money for relocation, no housing at destination, expensive mortgage, lack of desire to live worse than at home. In other words, people listed mainly economic factors. However, the most meaningful and important for us are sociocultural associations related to one's area. A content analysis of the most frequently mentioned associations identified cognitive and emotional components of images of one's own culture. The cognitive component included the following groups of associations: the Chudskoy lake, forests, the climate, people, hunting. The emotional component enhances the importance of cultural symbols by giving them a positive sensation: the famous lake, beautiful nature, rich forests, good climate, wonderful people (welcoming, responsive, sincere, kind, and open).

The ideas of respondents from a *central, "favorable" area* were gleaned from residents of the city of Pskov. Migration in the city is typically seasonal or irrevoc-



cable. Seasonal (temporary) migrations include regular trips to another place of residence, often in nearby metropolitan centers. Irrevocable migration is migration with no intention to return to the place of origin; the final objective is to gain a foothold and make one's way in life at the destination.

Reasons for people in the city of Pskov to leave their homes include a low living standard; parents' low wages, which mean limited prospects for youth; a lack of prospects for future development; a media-made image of "successful" compatriots who have moved to central Russian cities; and psychological dissatisfaction with the quality of life. These push factors are focused mainly on a lack of prospects for young people and psychological dissatisfaction. A centrifugal force sends migratory flows from the city of Pskov to other nearby but central, culturally-oriented cities of the Russian Federation. The main such cities are Moscow and Saint Petersburg.

However, there are also constraining factors for migration from Pskov. To the question "What could prevent you from leaving Pskov?" respondents gave the following answers: psychological and cultural incompatibility with the population of large cities (fast tempo of life, fierce competition, struggle for survival, cynical people); poor quality of food in shops (most respondents were accustomed to products from their farms); poor environment in large cities, no opportunities to relax in the countryside; high costs (time and money) of transportation. The psychological factor that had the strongest impact on preventing potential migrants from leaving was the stories of compatriots who came back. Re-emigration, or return migration, is spreading. Many residents of Pskov who leave and spend time in major cities return to their ancestral homeland, thinking now that such a life was not for them. In this case, this very factor is a constraint. However, according to young people, no one can force them to stay and impose his/her way of life on them.

The ideas of respondents from a *remote, depressed area* were gleaned from residents of the settlement of Plyussa. This area has a large aging population, poor (neglected) infrastructure, no road transportation. The main factors pushing people from the area are social isolation, poor infrastructure, seasonal isolation, lack of road networks between settlements, difficulties in getting to a hospital, school, clinic. The employment issue for the locals, after the closure of many enterprises and schools, is the most relevant. They have lost jobs; and their standard of living has fallen because of lack of employment. The level of alcohol abuse has increased. Hence, people experience a sense of decline, stagnation, depression, and thoughts of migration. As a result, there has been a sharp increase in the migration rate and moves to other, more attractive and favorable areas of the Pskov Region. This migration from a depressed area is to the city of Pskov and other cities of the Russian Federation. We may sum up all comments about constraining factors with one sentence, "If only jobs were here, who would leave this land?" This attitude was observed in all age groups except for the old-timers and the elderly.

All groups of respondents mentioned sociopsychological and economic reasons for migration regardless of direction and destination. For all groups, a desire for a better life and psychological well-being can be accompanied with serious difficulties (Table 3).

**Table 3.** Predicted problems and actual difficulties resulting from a change in residence (from Gurieva & Kinunen, 2010, p. 79–80).

<b>Expected difficulties</b>	<b>Described difficulties</b>
Learning a language (or, in the case of a move to another country, becoming immersed in another culture)	Adaptation to another language — proficiency, speech rate, dialect, verbal intelligence
Searching for a job	Difficulty in getting a job in area of specialization; time needed to search for a job; jobs are low-skilled, low-paid, physically hard
Lacking friends, family, communication	Social isolation; no psychological support; no close friends, family, parents; acute lack of communication; narrow circle for informal communication; disturbed mental health and psychological security
Dealing with difficulties in children's adaptation	Care of children; their lack of adaptation to a new climate, environment, requirements, conditions, which can lead to additional stressful situations and difficulties
Having financial difficulties	Limited financial potential; most of one's money spent on rent, mortgage, loans, children's training, travel expenses
Having everyday difficulties (housing, medical care, poor knowledge of legal system)	No necessary documents, no registration at place of residence, no insurance certificates, errors when signing agreements, contracts
Having difficulties related to cultural differences, mentality	Psychological and cultural isolation, a growing sense of being the «foreigner,» misunderstandings with other people, another culture, personality problems, dissatisfaction with oneself and others
Having psychological problems (problems in adaptation, loneliness, nostalgia)	Growing sense of despair, lateness, falling self-esteem, isolation, health and mental disorders, serious psychosomatic disorders
Dealing with negative attitude of indigenous population to visitors, migrants, emigrants, newcomers	Rejection of “strangers”; suspicion, lack of trust in strangers; suspicion of involvement in all the “deadly sins,” crimes, infringements with no exception for cases of discrimination and humiliation
Adjusting to a different climate, food, water, and their quality	Adjustment to dramatically changed nature: wind, humidity; changes in water, food quality, body-specific food, time zone, number of sunny/nonsunny days a year

Migration as both the internal and the external relocation of people should be regulated, controlled, instead of being a spontaneous social phenomenon. In each area, as the survey of locals has shown, there are predictors of internal and external migration that we need to be aware of in order to anticipate and manage complex migration flows. There are three key factors in the migration patterns of Pskov Region residents: (1) unemployment, no jobs against a background of destroyed industrial infrastructure; (2) psychological dissatisfaction, depressed mood (no facilities for leisure, relaxation, family pastimes; lack of careers and prospects for the future); (3) social isolation, poorly developed infrastructure: seasonal isolation, lack of road networks, difficulties getting to hospitals, schools, clinics.

At the same time, every area, town, settlement is a unique sociocultural, historical, and demographic unit with rich human resources and a potential for development. Knowledge of key indicators that affect both the level of migration and the attractiveness of cities and individual settlements allows us to devise a targeted scheme for managing migration flows in each case. Push factors, listed for the three places where focus groups were held, identify above all urgent problems that require an immediate response to avoid a continuing exodus. Well-timed actions will not only help regulate flows of people but also prevent a migration flow from the Pskov Region. The pull factors help to enhance the influence of psychological mechanisms to retain people. These factors may include the environment, the quality of life, the food, nature, and people with high moral values. The primary factors that may facilitate the management of this process are the time, distance, and status of a place of residence. These factors provide a basis for the development of government programs to assist or facilitate voluntary resettlement of residents from the Pskov Region.

## Discussion

In general, migration is a permanent or a temporary change in place of residence; it is a continuous process depending on the interactions among four main groups of factors (Iontsev, 1999). Part of the research on migrants' motivation is based on the theory of push and pull (push/pull factors), as proposed by E. Lee. This theory can explain the main causes for migration: push factors encourage people to leave their places of origin, and pull factors are attractive to people in other regions (Lee, 1966, 47–57). Manakov and Krivulya (2012) list three main reasons for the situation in the Pskov Region today.

To identify the main causes of migration — the sociopsychological specifics of potential migrants, their expectations, motivations, and philosophy — we need systematic and comprehensive research processes, including focus groups. Our findings have allowed us to classify all the migrants and potential migrants in the Pskov Region depending on their reasons and motives for migration. For example, in the depressed and remote settlement of Plyussa, migrants seek to escape their extreme poverty and unemployment; they can be called “survival migrants.” In this depressed area the category of actual and potential migrants includes all population groups, while migration itself is massive; such migration can be described as family migration because of its form. The main direction for the migration from this area is to central areas of the Pskov Region. This direction of migration flow is influenced and caused by the centrifugal force that sends people from a depressed settlement to more comfortable provincial centers and cities.

In the favorable central area, the city of Pskov, migrants seek to significantly increase their income and improve their quality of life. We can describe them as “migrants seeking new opportunities.” In this relatively “favored” area, the category of actual and potential migrants includes mostly youth, students, and high school leavers, while the migration itself is selective and can be generally characterized as a youth migration. The main direction for migration is from the city of Pskov to psychologically attractive metropolitan centers and cities, where young people go in search of new opportunities, self-realization, careers, and happiness. Hence, the

force for this migration is centripetal; it attracts youth from Pskov to larger metropolitan centers and cities.

In a border area, the town of Gdov, people living close to other countries (Estonia, Latvia) compare their financial situation and opportunities with those of people living in nearby countries. Migrants from this area tend to move in order to avoid an environmental crisis or progressive degradation of the environment, structural unemployment, and poor economic opportunities. We can call these people "migrants in search of hope and prosperity." Their focus is on another place, where they will live better. There is no doubt that the main factor in migration from this town is the closeness (psychological and physical) of foreign countries with more comfortable living conditions. We can describe the direction for this migration as over the border, understood both broadly and narrowly. A broad understanding suggests migration to another country. A narrow understanding suggests a move to a more comfortable living environment. Actual and potential migrants from this area include males of working age and females of childbearing age.

Based on the findings, we can conclude that strengthening the role of factors preventing migration through improvements to social infrastructure, transportation, and remote settlements in the Pskov Region will allow us to get away from a stereotypical idea of the area as one of the disadvantaged regions of Russia. An important resource in need of being used intensively for socioeconomic development in the region is climatic and natural conditions.

In general, a significant way to make the Strategy for Socioeconomic Development of the Pskov Region through 2020 dynamic in meeting target indicators lies in carefully and rationally using the human potential of the region, its climate and natural environment. To consider this issue, one needs systematic and scheduled measures to control and constrain the migration outflow. Interested parties among the residents, especially potential migrants, should share psychological problems and social difficulties that accompany the process of migration.

## **Conclusion**

Labor (economic) migration is a typical kind of migration. It involves the resettlement of people for the purpose of finding employment with proper remuneration. Migration can have other causes, such as a desire to change sociocultural, housing, environmental, natural, climatic, and other conditions. But without improvement in the economic and social sphere, improvement of these other factors will be able to prevent the migration only of elderly or incapacitated people. To retain the younger generation, it is necessary to inform people of all the difficulties that potential migrants may face and to make systematic and large-scale efforts to develop the region, to improve its image (thereby encouraging the residents to be proud of and to cherish its heritage and achievements), and to create a comfortable environment. Comprehensive implementation of the Strategy in a socially responsible way will allow achieving a new level of management in which the needs of the population and the quality of life of an individual will be coordinated with objectives set by executive authorities in charge of regional development.

In the Pskov Region, there is an opportunity to predict and classify with high accuracy the direction of migration processes in three different areas: depressed,

border, and center. Our research has shown that, depending on where they live, potential migrants are at different places in the migration process. In the depressed and remote Plyussa settlement, migrants seek to escape their extreme poverty and unemployment. In the city of Pskov, in the “favorable” central area, migrants seek to increase their income level and improve their quality of life. In the town of Gdov, a border area, people living close to other countries (Estonia, Latvia) compare their financial situation and opportunities with those of their foreign neighbors. Potential migrants from border areas tend to move because they want avoid an environmental crisis or progressive degradation of the environment, structural unemployment, and poor economic opportunities.

It begins to be possible to answer the main question regarding the expediency and necessity of the migration process in one of the Russian regions, Pskov. Actual, but currently unsolved, problems are being presented to social psychologists: Which factors are the most significant for migration — pull or push? Which methods of social-psychological correction need to be developed to adequately prepare potential migrants to move to another place to live, including a foreign country?

This study constitutes the first attempt to determine and explain the main reasons for migration in three territorial segments of the Pskov Region. The territorial division of the Pskov Region was determined after consideration of cultural, psychological, and economic aspects. The necessity of studying the main reasons for migration as indicators of the sociopolitical and psychological stability of the region in the future was pointed out.

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## **Psychological factors of the readiness of teachers to ensure social security in the educational environment**

Elena A. Shmeleva\*, Pavel A. Kislyakov, Larisa D. Maltseva, Ludmila F. Luneva  
*Ivanovo State University, Ivanovo, Russia*

\*Corresponding author. E-mail: [konkyrs2012@inbox.ru](mailto:konkyrs2012@inbox.ru)

The negative sociocultural transformations that are taking place in modern society and the resulting psychological transformation of personality and mode of life strongly require searching for ways of providing social safety to the next generation, with teachers being the implementers of this process. Teachers' professionalism is determined by their willingness to solve personal and socially relevant problems, including the willingness to provide social security for other people, to thwart social risks, and to build constructive interpersonal relationships.

The aim of our research was to reveal and to analyze the psychological factors affecting the readiness of teachers to ensure social security in educational environments.

The environmental factors of social risk have been theoretically characterized. It has been shown that the essential factor in ensuring students' social security is providing a safe social environment in educational institutions; such an environment provides the learners and the teachers with sociopsychological security and psychosocial well-being. The empirical part of our study was devoted to identifying negative social phenomena in the schools in the Ivanovo region (with the help of a questionnaire administered to 700 students) and to identifying the personally and professionally important qualities of the teachers and the subjective psychological factors of their readiness to ensure social security in the educational environment (through interviewing 300 teachers); the administration of the questionnaires and the interviewing were followed by an assessment of their significance (with the help of a questionnaire administered to 140 teachers). Using factor analysis we identified the relevant indicators and grouped them into six factors of the readiness of teachers to ensure a safe educational environment.

Relevant personal and professional qualities of teachers were revealed; these are the subjective factors of the readiness of a teacher to ensure social security in the educational environment: social anticipation, resistance to sociopsychological stress, social tolerance, professional orientation, responsibility, communication skills.

Data were collected in the analytical and experimental studies to determine ways to improve the organization of educational processes in order to ensure the social security of students and society in general. The identified psychological factors, their relative weight, and content must be considered when designing a system for training teachers and developing in them the required personal and professional qualities.

**Keywords:** social security, educational environment, psychological factors, negative social phenomena in the schools.

## **Introduction**

Nowadays the issue of the social security of people and of society has become one of the most pressing problems. The importance of the educational system in opposing negative social processes (drug addiction, alcoholism, youth delinquency, religious and national extremism, homelessness, socially determined diseases) and in forming a healthy and safe mode of life in society is confirmed by the strategic directions of international and national policy. The obvious impossibility of securing a person against all the dangers, threats, and crisis conditions created by progress leads to the necessity of rethinking our current understanding of security. The need for a scientific description of security as part of psychological studies has been noted (Zinchenko, 2011; Zinchenko, Veraksa, & Leonov, 2011).

The vice president of the Russian Academy of Education, D. Feldshteyn, in revealing the extreme vacuity and vagueness of the modern cultural-historical, political, and psychopedagogical situation, points to the developing resource of psychopedagogical science in human society; the perfection of its account of sociocultural, psychophysiological, and other educational reserves; and the mechanisms and technologies necessary for their utilization (Feldshteyn, 2012).

Studying security as a system is closely connected with the theory of a continual link between personality and the security of a society or organization (Zinchenko, 2011, p. 308). Students often spend more time in an educational establishment than even in their family environment; for this reason, the degree of impact of this microcommunity on the socialization, development, health, and behavior of a child or of a young person is inestimable. Psychological research has shown that the safety of the educational environment is directly connected with the mental health of students and with their progress in school (Glew, Fan, Katon, & Rivara, 2008; Nansel, Overpeck, Haynie, Ruan, & Scheldt, 2003).

Nowadays in Russian schools the rate of juvenile violence is increasing; children even record beatings of their classmates on video. According to mass media «annually thousands of acts of violence are reported to the police; over 60% of children aged 8 to 17 would agree to take part in violent acts; 6% of children say they might kill someone if they could benefit from it» (Teenage cruelty in Russia turns into a profitable business, 2007). According to research undertaken in Russia, nearly 40 percent of high school students experience violence in one way or another (Dunne et al., 2009). As a result, a new generation is growing up for whom violence is standard practice. Psychologists have pointed out the seriousness of the consequences of school violence: poor progress in school, problems in relationships with others, low self-esteem, inclination to depression, suicide (Tucker, Finkelhor, Shuttuck, & Turner, 2013).

Sometimes cases involve unmotivated aggression: when teens are in a state of emotional stress after undergoing psychological trauma, they attack other pupils and teachers, even using firearms. In some studies a tendency toward violence among teens is associated with their level of self-control, social status, prestige, and other characteristics (Tucker et al, 2013). And violence among teens has another side — sometimes children are attacked by teachers. These cases indicate the importance of professional and psychological evaluations of prospective teachers and of the ongoing psychological state of schoolteachers in general.

As this discussion shows, it's necessary to develop means for ensuring personal social safety in the educational environment. We understand the development of students' social safety as the active responsibility of teachers to create a safe educational environment in order to protect children from social risk and to promote a conscious attitude toward the personal safety of others. This project requires spiritual and moral qualities and skill in revealing, preventing, weakening, and eliminating social dangers and threats that arise in the individual, group, and social and cultural environment. Providing security is among the most important social experiences of a human being. The need for security urges a person to constantly rethink social occurrences as well as to search for adequate ways of overcoming the continuously appearing threats to both physical and spiritual existence (Zinchenko, 2011, p. 309).

Research of security as a sociosystemic phenomenon will determine the interconnected factors that generally provide favorable conditions for safe development (Zinchenko, 2011, p. 314). The social safety of students as a social and psychopedagogical category is determined both outwardly and inwardly and is influenced by psychological factors that are responsible for the achievement of a high level development. Given conditions of radical social change, all the basic elements of a functioning society are revised, both at the state level and at the level of a particular person. Changes occur in the external psychological factors of the formation of personality, such as the functioning of social institutions, the quality of the environment, and the conditions provided by the society for the implementation of human capabilities.

The ability to protect oneself from possible personal threats and to create a secure environment (and a secure relationship with the environment) requires an ideal level of cooperation with the social environment. The human social environment, which aims to guarantee safety, can and should promote the working out of the adaptive behavioral forms of humans in society and should provide a safe behavior pattern that is based on the experience of teaching about relationships. In this case the priority is either the inward nature of the person or the environmental dependence on personal organization. One social environment that promotes the personal safety of people in the process of growing up is the educational institution, which promotes child development and socialization.

The characteristics of the educational institution can be considered environmental factors that determine the psychosocial prosperity (safety) of students. As Maslow figuratively writes (2001, p. 364):

[A] positive environment is one of the first factors of self-actualization and health for the average person. Given the possibility of self-actualization, this environment will withdraw into the shadows like a good-hearted tutor to let one make a choice by oneself in accordance with one's own wishes and demands (retaining one's right to watch that other people's wishes and demands are taken into account).

A natural feeling of safety is one of the basic feelings of a normal person. Children study better when they are safe/happy (Kislyakov, Shmeleva, Karaseva, & Silaeva, 2014). Some authors say that this psychological prosperity of students should

become the conceptual basis for educational reform (Noddings, 2003). Gilman and Huebner (2006) associate the psychological prosperity of students with life satisfaction and the ability to control stress; Suldo, Shaffer, and Riley (2008) associate it with high emotional regulation and academic abilities. In Russian and American psychology some methods of determining psychological safety have been developed (Baeva, 2002; Huebner & Gilman, 2006; Suldo et al., 2008).

Consequently a socially safe educational institution includes the immediate environment of the students, factors of the educational environment and its system of functioning, appropriate conditions for the development of students' psychophysical characteristics (which meet requirements for their safety and physical and mental activity), and also preventive measures against the negative impact of educational risk factors. Nowadays the problem of humanizing the educational environment can be combined with the problem of planning it to be socially safe.

The main social risks that negatively affect the development of educated and healthy children are: macrofactors (social instability and the criminalization of society, social stratification, radicalization of the socioeconomic and sociopolitical subsystems of society); factors in the functioning of social institutions (aggressiveness in the information environment, devaluation of spiritual and moral values, and attraction of the society to asocial behavior); social risks in the educational environment (dehumanization and increase of violence, intensification of the educational process, pedagogical tactics that create stress in students); factors caused by students' staying in a group of social risk (informal youth groups, destructive religious organizations); negative behavioral characteristics of young people (deviant, addictive, victimlike, antisocial) as a consequence of the lessons learned in the socialization process: antisocial norms, values, and worldviews.

Today in real life revelation and analysis of the factors of social dangers are usually carried out intuitively without using appropriate methods, which include quantitative and expert procedures. For instance, teachers may suddenly discover with surprise that some of their students take drugs and are wedded to extremist, suicidal, and other negative views. And sometimes, during several weeks and months, some changes in behavior, signs of an interest in illegal actions, are observed but are not properly evaluated and paid attention to by teachers.

Research shows that about 85% of teachers are in a state of steady stress, which appears to be the reason for neuroses and somatic illnesses (Tretyakova, 2009; Karaseva & Babanova, 2010). Increasing neuroemotional stress, psychoemotional tension, and neurotic reactions of teachers have a negative impact on their relations with students. From the health-psychology perspective a normal personality is mentally stable (including being resistant to stress); this stability allows it to support its own reliability and to stand against outside influences, to overcome the resistance of outside conditions, to struggle against hindrances, and finally to achieve goals. Moreover, a teacher, responsible for the safety of students, must be ready to prevent stress in students in extreme situations of social chaos. These requirements speak to the necessity of special psychological preparation for social and extreme (emergency) types of activity. They reveal the need to discover and study the psychological qualities of teachers that will help them provide social security in the educational environment.

## Method

Our study aimed to identify the psychological factors that influence the readiness of teachers to ensure social security in the school environment.

In the first stage of the study, in order to detect the presence of negative social phenomena in schools, we conducted a survey among students. They were asked to indicate which social evils they had personally experienced or witnessed in school during the previous year (from the date of completion of the questionnaire) (Table 1).

**Table 1.** Students' reports of the occurrence of negative social phenomena in their educational institutions,  $n = 700$

Dangerous situations of a social nature	Happened at least once in previous year (%)
Hooliganism (foul language and insults, pushing and beating)	35
Offering drugs to students	10
Alcohol consumption by schoolchildren	46
Information that a student was infected with HIV/AIDS	9
Appearance of religious sectarians or recruiters	9
Harassment by robbers and/or by extorters of money and/or mobile phones	29
Information regarding a theft that caused discomfort, alarm, fear	39
Being a victim of a theft	18
Conflicts and quarrels among students	50
Conflicts with teachers	27
Information regarding displays of nationalism, intolerance by some students (public demonstration of Nazi attributes or symbols, fomenting of national discord)	43
Aggressive actions of so-called informal youth groups (Skinheads, Goths, Emos, etc.)	6

The questionnaire was devised to obtain information about the frequency of manifestations of certain social risks. The responses were recorded statistically not by their number but in a way that revealed the acceptability of social risk factors in a school. The questionnaire was administered to 700 students in grades 9–11 in 10 schools in the Ivanovo region.

Among the negative social phenomena in the educational environment that appeared to be social risk factors the students reported alcohol abuse among young people (46%), conflict and quarrels among students (50%), conflicts with teachers (27%), manifestations of extremism, nationalism (43%), and the spread of drugs (10%). The study also showed that despite the fact that almost all the students (91%) knew about the leading role of lifestyle in the formation of healthy habits and consequently of readiness to ensure personal safety, only 35% of them rated their lifestyle as healthy. The factors reported that do not contribute to a healthy lifestyle were poor nutrition (84%), sedentary lifestyle (25%), smoking (22%), alcohol abuse (13%). Thus, the students were able to assess a number of negative phenomena as social risk factors, as well as the importance to them in a healthy lifestyle (Kislyakov & Silaeva, 2014).

In the second stage of the study, in order to discover the important personal and professional traits of educators that serve as subjective psychological factors, we held interviews with educators (teachers, heads of educational institutions, social educators, school psychologists, professors) in the Ivanovo region, Moscow, Saransk, and Sterlitamakh. They were asked to describe the qualities of teachers that enable them to provide for their own defense against social threats and for the defense of students. In all, we interviewed about 300 teaching staff. The results of the poll were shortened and processed, and the following characteristics of the readiness of a teacher to ensure social security were identified:

1. Critical thinking
2. Seeing children as valuable
3. Constant professional self-development
4. Sociability
5. Ability to control one's emotions
6. Restraint
7. Ability to anticipate the course of events
8. Watchfulness
9. Self-assurance
10. Independence
11. Ability to cooperate, to be in contact with other people
12. Ability to keep one's word
13. Sense of duty
14. Ability to correctly determine one's own capabilities
15. Foresight
16. Self-discipline
17. Respect for and acceptance of other people
18. Multiculturalism
19. Outspokenness
20. Tolerance of the views and opinions of other people

These indicators served as a basis for the study of the personal and professional qualities that are necessary for teachers to have if they are to provide social security in educational institutions and to provide students and themselves with sociopsychological security and psychosocial well-being.

In the third stage of the study, in order to establish the value of important personal and professional features that serve as an index of the readiness of teachers to ensure social security, respondents were asked to rate the importance of these features on a 5-point scale:

- 5 points – “extremely important”
- 4 points – “very important”
- 3 points – “fairly important”
- 2 points – “not very important”
- 1 point – “not important at all”



One hundred forty educators took part in this stage. The data from the second stage served as a base for making up the list of features of an educator that are necessary for providing for the personal safety and security of students.

The rating results were processed by factor analysis (analysis of the main components by the Varimax rotation method with Kaiser Normalization) using the standardized software package SPSS 17. The number of each factor, its name (determined by content), its specific weight, and the teacher characteristics that are included in it are shown in Table 2. The weights of the factors total 61.88%; this is more than half, which is considered an acceptable result. It is a mark of how well the factors represent the set of included characteristics. It reflects the inner validity of the factor structure because it helps explain empirical regularities. When interpreting the factors, we paid attention to the difficulty of tasks (over 0.45). High difficulty of tasks (over 0.5) does not cross in factors and does not appear to be common for a few factors.

**Table 2.** Factors in teachers' readiness to provide social safety, determined by interviews with educators,  $n = 140$

Number of factor	Specific weight of factor, %	Teacher characteristics	Factor name
1	21.571	Watchfulness (0.766) Ability to anticipate the course of events (0.760) Foresight (0.747) Ability to correctly determine one's own capabilities (0.492) Critical thinking (0.450)	Social anticipation
2	14.313	Restraint (0.749) Self-discipline (0.721) Ability to control one's emotions (0.468) Self-assurance (0.570) Sociability (0.468)	Resistance to sociopsychological stress
3	8.277	Tolerance of the views and opinions of other people (0.792) Respect for and acceptance of other people (0.643) Multiculturalism (0.639) Outspokenness (0.595)	Social tolerance
4	7.047	Constant professional self-development (0.770) Seeing children as valuable (0.710)	Professional orientation
5	5.431	Sense of duty (0.664) Ability to keep one's word (0.631) Independence (0.553)	Responsibility
6	5.248	Ability to cooperate, to be in contact with other people (0.830) Sociability (-0.502)	Communication skills

## **Results and discussion**

Factors were chosen in accordance with the table of factor loadings after rotation; this procedure resulted in a factor structure that is the best available for interpretation at a given ratio of variables and factors; on the basis of this interpretation the key indicators of the readiness of a teacher to ensure social security were marked.

Let's consider the content of the factors shown in Table 2. The first factor, social anticipation, is dominant. This factor can be characterized as an ability to anticipate the course of events, precisely determine one's own capabilities, take stock of an event.

Developed social anticipation helps teachers to predict the results of their plans for providing social safety; to self-adjust the direction of implemented plans; to forecast the rise of dangerous social situations in educational institutions that are created by participants in the educational process; to predict the outcome of emergency situations; and to take action to minimize factors that have a negative influence on students' health.

The second factor, resistance to sociopsychological stress, characterized by restraint, self-discipline, ability to control one's own emotions. Sociability is a part of stress resistance because many teachers consider the ability "to talk," "to build up a constructive dialogue" in stressful situations as a reflection of the ability to self-regulate and to provide urgent psychological assistance in an extreme situation.

The third factor, social tolerance, encompasses sincere respect for and acceptance of other people and their spiritual values. At this time such qualities as ethnic tolerance and personal tolerance are important because teachers in their daily work interact with representatives of different nationalities, different ethnic and social groups, different religious views.

Moreover, tolerance is not the passive acceptance of the opinions, views, and behavior of other people but is an active moral position and is indicative of psychological readiness to have positive interactions with people based on morality and the law.

The characteristics of the fourth factor, professional orientation, bear a direct relation to the direction of the pedagogical profession. Commitment to continuous professional self-development and seeing children as valuable underlie the ability of the teacher to find the personal and social resources necessary to ensure a comfortable learning environment and social situation for the students.

Teachers' formation of a professional orientation in the field of social security is characterized by:

- social and educational values: prioritization of safety, one's own health, and the health and safety of pupils; love for pedagogical work
- personal values and pedagogical activity: assignment of oneself to the field of social security; commitment to professionalism in this field; development of the capacity for self-organization, self-management, and self-education in the field of social security; development of a focus on creative ways of working

The fifth factor is teachers' assumption of professional responsibility. Professional responsibility for oneself, one's pupils, and their future is understood as a

personal quality that is based on the ability to take responsibility for what happens to oneself and one's students and the ability to take action oriented toward preventing dangerous and extreme situations in educational institutions and toward creating healthy and safe student lifestyles using idealized models that can be specified depending on one's specialty. The development of these personal and professional qualities, as reflexive abilities and as a system of moral and ethnical values, depends on the formation of one's sense of responsibility.

The sixth factor is the formation of communicative skills that contribute to the implementation of secure interactions among individuals. At the microlevel, potential threats to social safety occur in direct communication with other people. Such threats include abuse, manipulation, and the formation of unstable social ties. The presence of such threats makes communication and related attitudes toward other people one of the leading factors. There is no doubt that what teachers say and how they say it have an impact not only on the successful assimilation of knowledge but also on health, especially mental health. Not only the teacher's speech but also communication among students themselves has an impact on students; their speech culture can negatively affect their health, especially their mental health. In the youth environment the use of foul words and profanity has been increasing dramatically. People who frequently use profanity already have defects in mental health; such speech degrades a person. In this regard, in an educational institution special attention should be directed to lamprophony, as well as to improving the speech culture of students.

The characteristic of sociability can have a negative influence on the factor of communication skills. Sociability is not a professional characteristic related to personal-confidential communication, and it can be coupled with reduced consciousness of manipulation and low critical thinking. In this case, the relevant expressions characterizing the state of information safety are "don't say anything you know, but know everything you say" and "loose lips sink ships."

## **Conclusion**

Safety in the educational environment directly depends on the quality of the training teachers receive for developing professional competencies and personal and professional qualities that contribute to the social security of the individual in the educational environment.

Teachers' ability to provide social anticipation helps them reveal and foresee social and other dangers. Therefore, teachers should develop their watchfulness, constantly learn everything that concerns various dangers, consult specialists, and analyze their own actions and mistakes. They will then have knowledge of all the characteristics of dangers and will be able to foresee them, resolve them quickly, and eventually to avoid them. Experience in averting danger, avoiding dangerous situations, and coping with them when necessary contributes to the development of social anticipation. In the future these experiences will help teachers work out a strategy for safe behavior and they will then be able to protect themselves and the wider public from inner and outer negative factors in the environment and to provide social safety.

The development of social tolerance in educators is part of the formation of a tolerant educational system in which an atmosphere of nonviolence is created, tolerant interactions are realized, democratic conduct is expected, and all are accepted regardless of differences in age, race, nation-ethnicity, language, property, religion, and individual-personal characteristics.

The professional orientation of a teacher toward providing social safety is a mental feature of the personality that determines the demands, motives, ideology, positions, and aims of activity in the area of social safety. A mature professional-evaluative orientation significantly contributes to the efficiency of the creative development of specialists and to the productivity of their professional work.

Teachers' abilities to have a consciously responsible attitude toward their own lives, to actively build their professional careers, and to consciously make specific choices and decisions in often unsafe situations are of particular importance in today's society. Educational space is the place where the civic and moral responsibility of the individual is accentuated. Professional responsibility is one of the regulators of pedagogical work, as a teacher has significant influence in shaping the worldview of the younger generation.

To ensure the social safety of students, teachers should possess the following communication skills and abilities:

- the ability to create personality-oriented, trust-based cooperation in the educational process, including goodwill and courtesy
- the skill of democratic communication, including the ability to listen, to understand, to convince, to explain, to argue
- the skills of speech culture, including clarity and use of literate language
- the ability to maintain emotional balance and to prevent and resolve conflicts in a constructive way, including the ability to cooperate, to reach compromise
- the ability to develop a strategy and tactics and techniques for active interaction with people, to organize joint activities for the achievement of certain societal goals
- the ability to assess the interaction of people in the education environment objectively

The psychological factors required in teachers are social anticipation, resistance to sociopsychological stress, social tolerance, professional orientation, responsibility, and communication skills; their weight and characteristics must be considered when designing a system for training teachers and as they develop their own social security as a personal-professional quality. The data from our analytical and experimental studies allowed us to determine ways to improve the organization of the educational process in order to ensure the social safety of students and society as a whole.

The relevant factors that we identified allowed us to outline a program for the formation and development of the readiness of teachers to ensure the social security of their students. The analytical study of the data revealed the necessity of implementing a complex program for creating socially safe environments in educa-

tional institutions. The main components of our projected environment are: training teachers in special seminars how to provide social security; creating a favorable psychological climate in the classroom and school as a whole; implementing a system of social and psychological support for students and teachers; creating a tolerant educational space based on the principles of humanity and internationalism; implementing preventive measures in regard to student smoking, drinking of alcohol, and drug use.

In conclusion, it should be noted that in a changing sociocultural situation the need arises to include indicators of the social security of the individual in the educational environment in monitoring the quality of education. At the same time it is necessary to organize continuous monitoring of the state of the educational environment in order to identify social hazards and to promote the development in teachers of personally and professionally important qualities that indicate their readiness to provide social security.

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## The psychological safety of the educational environment and the psychological well-being of Russian secondary school pupils and teachers

Irina A. Baeva<sup>a</sup>, Nina V. Bordovskaia<sup>b\*</sup>

<sup>a</sup> *Herzen State Pedagogical University of Russia, St. Petersburg, Russia*

<sup>b</sup> *St. Petersburg State University, St. Petersburg, Russia*

\*Corresponding author. E-mail: nina52@mail.ru

The interest of psychologists in the study of safety in the educational environment and its psychological characteristics is increasing. The aim of this study was to select, substantiate, and disclose the psychological factors in the educational environment that influence the psychological well-being of pupils. There were three stages in our research: clarifying the level of psychological safety in the schools in the study; revealing the consistency of the teachers' and the students' evaluations of the level of psychological safety in those schools; determining the nature of the influence of the psychological safety of the educational environment on the psychological well-being of the students. The study involved 172 teachers and 876 students in Moscow and St. Petersburg schools.

Psychological safety is a condition of educational environments that are free from psychological violence in the interactions of the people in them; psychological safety contributes to the satisfaction of the needs for personal trust and communication, creates for the participants a sense of belonging (the referential importance of the environment), and contributes to their mental health.

The empirical study revealed that (1) the level of the psychological safety of the educational environment in the evaluations of the teachers was higher and had more expressed differentiation than did the level in the students' evaluations; (2) the psychological well-being of the students was closely correlated with the level of psychological safety for the teachers; (3) such components of the well-being of the students as emotional comfort, self-confidence, a higher level of cognitive activity were developed in those schools with high levels of psychological safety for the teachers.

The results can be useful in educational psychology and environmental psychology as well as when creating technologies to support the safety of school environments and of the people in them, including situations related to minimizing safety violations and reducing risks and threats.

**Keywords:** educational environment, psychological safety, psychological well-being of pupils

## **Introduction**

The interest of psychologists in the study of the educational environment and its psychological resources is increasing because, with the active development of continuous education in Russia and other countries, the number of people in this environment at different stages of life (not only in childhood and the traditional school years) is increasing. The educational environment occupies a special place because of the importance of its influence on personal development. Vygotsky (1982, p. 127) wrote, “The impact of the environment on child development will be measured among other influences as well as the degree of understanding, awareness, and comprehension of what is happening in the environment.” Vygotsky was one of the first Russian psychologists who turned to the study of the sociohistorical determination of the psyche.

With the end of the twentieth century, Russian psychologists have shown considerable interest in the psychological problems of ecology and the development of children’s minds in the process of interaction with the environment. As a result, several productive approaches to determining the psychological sense of the educational environment and its role in personality development and socialization have appeared (Rubtsov, 2009; Slobodchikov, 2000).

First, a significant claim of this research was the idea that the educational environment influences human behavior: its objective properties preset the universal “framework” in which individual development and behavior take place (Panov, 2007).

Second, there were new approaches to the study of the influence of the educational environment on a pupil’s personality and its development (Baeva, Volkova, & Laktionova, 2011) and on the professional and personal development of the student (Bordovskaia, 2012).

Third, psychological studies have proven that people can develop only in an environment with certain parameters, one of the most significant of which is safety (Baeva, 2002). Safety is a basic human need, and it has a key role in providing for the mental health and development of children.

Thus, the study of the psychological safety of the educational environment as a psychopedagogical reality and set of conditions that provide for the positive development and the formation of the personality of each participant in the educational process is extremely relevant in view of the ongoing acts of violence against children, groups, or communities in the context of the family, kindergarten, or school. Violence is the main source of psychotrauma, a factor in the deterioration of mental health (Volkova, 2011).

The search for tools of psychological resistance and the conditions that reduce threats and mitigate the risk of safety inhibition is not only a social need in modern conditions but also the task of special studies. In the psychological context the search for tools and conditions for studying the perception, cognition, and assessment of the educational environment for the development of students and teachers is beginning.

The modern system of Russian education is in the process of being reformed and is offering fundamentally different activities to teachers and students; these changes raise the necessity for the stability of these participants in the educational environment and their ability to overcome difficulties. The basic goal is the preservation of graduates’ health — physical, mental, and psychological. The psychologi-

cal aspects of achieving this goal lie within the framework of providing support for the psychological well-being of teachers and students.

Many psychologists are guided by the model developed by C. D. Ryff (Ryff & Singer, 2008) for understanding and studying psychological well-being. This model proposes these structural components of psychological well-being: a positive attitude toward oneself and one's past life, relationships with people that are imbued with care and confidence, the ability to follow one's own beliefs, the ability to meet the requirements of everyday life (competence), goals and activities that give meaning to life, and continued development and self-realization. The theoretical foundations of each of these components can be found in the following theories and concepts: the theory of self-actualization of A. Maslow, the theory of personality development of E. Erickson, the theory of individuality of K. Jung, and the theory of desire for meaning of V. Frankl and others.

According to Diener and Diener (1996), psychological well-being includes cognitive assessment of different aspects of life, emotional self-acceptance, and the experience of subjective well-being comparable to the experience of happiness. Psychological well-being is determined not so much by the circumstances of life as by stable personality characteristics. In a study by Shek (2007) psychological well-being was revealed through components such as hopelessness/hopefulness, abilities, life satisfaction, and self-respect.

Thus, the applied aspects of psychological well-being are well represented in foreign research, while Russian research has considered psychological well-being only within the framework of activity theory and personality development. These differences highlight the contradiction between understanding the complex of psychological factors and conditions ensuring the safety of the Russian school and the need for practical psychologists and educational practice to account for the main psychological factors that determined the problem field and the purpose of this study.

The *problem* of this study is to find answers to the following questions:

- How can we understand and determine the psychological characteristics of the educational environment in regard to its safety for the mental development of teacher and student?
- Are there any differences between teachers' and students' estimates of the psychological safety of a school's environment?
- Which psychological conditions of the educational environment provide for the psychological well-being of pupils in secondary school?

The *aim* of the study was the selection, substantiation, and disclosure of the psychological factors of the educational environment that influence the psychological well-being of pupils in the Russian sociocultural and educational megacities, Moscow and St. Petersburg.

### ***The theoretical basis of the empirical research***

The theoretical premise of the study is that there is a connection between the level of psychological safety of an educational environment and the psychological well-being of its participants. It is therefore important to determine the psychological

safety of an educational environment and the characteristics that help determine the level of safety for all its participants.

This premise and our previous studies (Baeva, 2002; Baeva et al., 2011; Bordo-vskaja, 2013) allow us to formulate a basic definition of the educational environment and to clarify its psychological characteristics. The educational environment is the psychological-pedagogical reality that contains specially arranged social and spatial-thematic conditions for personality formation and development opportunities. From our point of view, the psychological essence of an educational environment can be disclosed or determined through (a) the personal characteristics of the participants; (b) the features of their interactions; (c) the content of the education provided and the means of its transmission. On the basis of this understanding, the psychological quality of the educational environment manifests itself in the evolving relationship between teachers and students.

We complete our understanding of the educational environment with a characterization of the conditions that ensure the positive personality development of each participant. As Maslow (1954, p. 194) writes:

[For] fostering self-actualization or health, a good environment (in theory) is one that offers all necessary raw materials and then gets out of the way and stands aside to let the (average) organism itself litter its wishes and demands and make its choices (always remembering that it often chooses delay, renunciation in favor of others, etc., and that *other* people also have demands and wishes).

Psychologists use different characteristics to describe a «good» educational environment — for example, the developmental character of the environment, its provision of psychological comfort. We suggest considering psychological safety as one of these important psychological characteristics.

Safety is the feeling of protection (human and environmental) as well as the ability to reject negative external and internal threats (Baeva, 2002). The need for safety is a basic human need, but in the psychological context it has an enhanced role in determining the prospects for positive development in the presence or absence of traumatic deformation of the personality structure. At certain stages of ontogenesis (early childhood), disregard for this need leads to a threat to life or to uncompensated mental health consequences. Therefore, an important aspect in choosing tools for providing safety is an understanding of psychological safety in the educational environment and the role of psychological factors, which in our analysis of the educational environment we considered mostly from the point of view of safety for students.

Psychological safety occurs in an educational environment when it is free from psychological violence in the interactions of its participants; psychological safety contributes to satisfaction of the needs for personal trust and communication, creates the referential importance of the environment (gives one a sense of belonging), and promotes mental health. The nature of social interaction in the educational environment creates the reference environment, the psychological safety of its members, and their satisfaction with the components of their interpersonal interactions.

On the basis of this approach we can develop the concept of the psychological safety of the educational environment as the protection of participants from threats

to positive development and mental health in the process of the pedagogical interaction. We have proposed the following provisions as conceptual ideas for psychological safety (Baeva, 2002; Baeva et al., 2011; Bordovskaia, 2012):

1. An important condition for the developmental character of an educational environment is its psychological safety.
2. Teachers should use methods and technologies that present a minimal risk of harming the formation and development of students' personalities in order to ensure their stability and resistance to negative influences.
3. The main threat to the psychological safety of participants in the educational environment is psychotrauma in the communication process, which can damage positive development and mental health and can be an obstacle to self-actualization.
4. The main source of psychotrauma in participants in the educational environment is psychological violence in pedagogical and interpersonal interactions.
5. Pedagogical and interpersonal interactions in the educational environment are psychologically safe if they promote a sense of belonging, convince participants that they are out of danger (the absence of the above-named threats), and strengthen mental health.
6. Providing psychological safety in an educational environment and, as a consequence, protection and support of the mental health of its participants should be a priority for practical psychology in education.

We assume that the most important outcome of children's presence in an educational environment with a high level of psychological safety is their psychological well-being, a necessary condition for personal development and the preservation of mental health.

In Russian studies psychological well-being is reviewed through selection of the components of a person's well-being: social, spiritual, material, physical, psychological (Kulikov, 2004). Psychological well-being is characterized by coordination of mental processes and functions, a sense of integrity, and inner balance. All these components are closely interrelated and influence each other. Well-being depends on clear goals, the successful implementation of plans for activities and behavior, the availability of resources, and the necessary conditions for achieving the goals. Trouble occurs as a result of frustration, the presence of negative factors in the social environment (violence, threats), and other similar conditions.

In our study, psychological well-being is a structure that includes the features of the mental state and personality that are relevant to a person's ability to successfully overcome obstacles in relationships with other people. At the same time, we note the importance of the positive experience of overcoming difficult situations in the development of psychological well-being, so let us consider this as a quality of personality. From our point of view, the experience of well-being/ill-being determines a person's focus on achieving a certain level in the system of social relationships and determines the social position of the person in the environment. Theoretical analysis has allowed us to confirm that the psychological safety of the educational environment has as its qualitative characteristic the condition of supporting the

psychological well-being of adolescents. A lack of psychological safety in the case of intense psychological violence in the educational environment can reduce the well-being of adolescents and result in a low level of emotional comfort and self-confidence.

The rapid increase in the quantity and diversity of risk in the educational environment has intensified the attention of researchers on the problem of the psychological well-being of adolescents in the modern metropolis, and, in particular, the problem of the well-being of adolescents in the school environment.

On the basis of this analysis, the hypotheses of the study were formulated:

1. There are differences between pupils' and teachers' evaluations of psychological safety in the school environment.
2. The level of the psychological safety of the educational environment for teachers affects the psychological well-being of students.

## **Method**

### ***Research design***

There were three stages in our research. In the first stage we clarified the understanding of the psychological safety of the educational environment and selected the methods and the indicators for identifying the level of psychological safety in the schools we studied. In the second stage the strategy and design were determined; methods for obtaining the teachers' and the students' evaluations of the level of psychological safety in their educational environment as well as for determining the extent of the consistency of their evaluations were selected. In the third stage the nature of the influence of the psychological safety of the educational environment for the teachers on the psychological well-being of the students was determined.

The study involved 172 teachers and 876 young adolescents (13–14 years) and older adolescents (15–17 years) in 12 Russian schools in Moscow and St. Petersburg. A pilot comparative study did not reveal significant differences in the parameters for assessing the status of the schools' educational environment in the two cities. In addition, we analyzed the obtained empirical results in a single sample.

### ***Methods***

The method of the "psychological safety of the educational environment of the school" of I. A. Baeva (2002) was used to identify the level of the psychological safety of the educational environment and the calculation of the index of psychological safety of the educational environment in the evaluations of the teachers and the students. The method consists of questionnaires in versions for teachers and for students-adolescents; each version includes 11 questions with the proposed scales of responses containing the scores for characteristics of the educational environment.

In accordance with the theoretical concept of the psychological safety of the educational environment three integral indicators of safety as measured by this method were found. The first indicator was the significance (referentiality) of the educational environment for the teachers and the students. The empirical criterion was attitude to the educational environment — positive, neutral, or negative — as



measured by a scale system containing cognitive, emotional, and behavioral components of this attitude. The second indicator was the teachers' and the students' satisfaction with basic features of their interactions. The empirical criterion was school-environment satisfaction, calculated as the total score of the characteristics of a school's social environment that were included in this method. Analysis of the category of mental violence in interpersonal interactions allowed us to accept the level of protection against mental violence as the third indicator of psychological safety in the educational environment. The index of the psychological safety of the educational environment was determined by totaling the estimates for the three indicators: protection against mental violence in interpersonal interactions; the significance of the environment; satisfaction with the basic sociopsychological characteristics of the environment.

In addition to the basic components of the psychological safety of the educational environment, the method allowed us to detect the levels of the cognitive, emotional, and behavioral significance of this environment for its participants. Thus, by assessing the protection of participants in the educational environment against mental violence in addition to analyzing their protection against various manifestations of mental violence — such as public humiliation, insults, threats, enforcement, withdrawal of attention — and hostile attitude, we could identify the sources of this protection. In particular, for the students the sources could be peers and teachers, and for the teachers the sources could be colleagues and students. The method allowed us to analyze satisfaction with characteristics of the educational environment — relationships with teachers and students, the opportunity to express one's point of view, respect for oneself, the preservation of personal dignity, and the ability to summon aid, to be proactive, and to take into consideration personal problems and difficulties. Having two types of participants in the study — the students and the teachers — helped us to determine the level of psychological safety of a school's environment and to conduct a comparative analysis on the basis of their evaluations.

To identify the components of the psychological well-being of the students we used the Scale of Subjective Well-Being, a technique for diagnosing personal creativity by E. E. Tunik (2002), and the Life Orientation Test as adapted by D. A. Leontiev (2000). The developers of the Scale of Subjective Well-Being were French psychologists A. Perrudent-Badox, G.A. Mendelsohn, and J. Chiche, who published it in 1988. In studying the impact of individual health on emotional well-being, researchers were faced with the need to develop a method for individuals to assess their own emotional state. In Russia the technique was adapted by M. C. Sokolova (1996). The scale consists of 17 items aimed at measuring the emotional components of psychological well-being and identifying the level of emotional comfort. Participants rate the level of their agreement with the proposed statements on a 7-point scale. The evaluation allows determination of the level of well-being, the characterization of such parameters as intensity and sensitivity, the identification of the characteristics that accompany the main psychoemotional symptoms and mood changes, and the importance of the social environment, self-esteem, health, and satisfaction with daily activities.

The technique for diagnosing creativity helps to identify the level of individual creativity based on the evaluation of its components, such as curiosity, imagination,

complexity, and risk-proneness. The scale Curiosity characterizes the interest of adolescents in the events and phenomena of the world around them and their desire to learn new things and to find new ways of solving problems. The scale Imagination describes adolescents' ability to fantasize. The scale Complexity characterizes the desire to formulate and solve complex problems and the persistence displayed in doing so. The scale Risk-proneness is not without interest in the context of our study because it allowed us to estimate teenagers' persistence in asserting ideas contrary to those of other people and to identify whether they resist alien influences, admit the possibility of their making mistakes, and perceive a difficult situation as a challenge and a test.

The Life Orientation Test is an adapted version of the Purpose in Life test of James Crambo and Leonard Maholik. The test reveals the presence of time perspective and the meaning of life (the scale Purpose in Life); the view of life as interesting and emotionally intense (the scale Life Process); satisfaction with life (the scale Outcomes of Life); one's self-image as a person with freedom of choice throughout life (the scale Locus of Self-Control); one's self-image as a person capable of controlling life (the scale Locus of Life Control).

For statistical data processing we used descriptive analysis, chi-square criteria, and Spearman correlation analysis to evaluate the study objectives.

The proof of the assumption that the level of the psychological safety of the educational environment for teachers can influence the psychological well-being of students was carried out using a one-way ANOVA test.

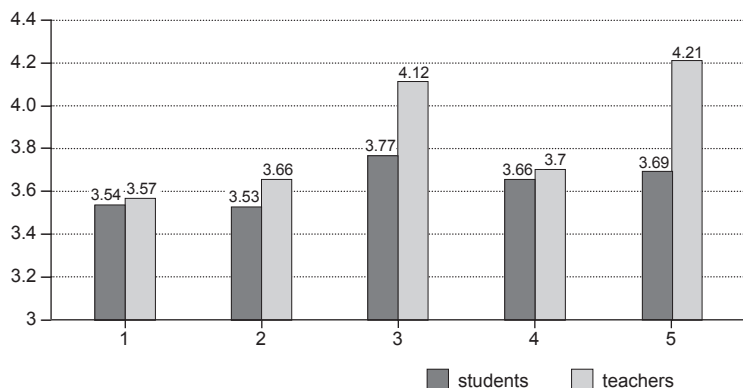
## **Results**

### ***Teacher's and students' evaluations of the psychological safety level of the educational environment***

The data showed the heterogeneity of the level of the psychological safety of the educational environment in the schools studied in Moscow and St. Petersburg. This fact confirms the validity of the developed method for evaluating the psychological safety of the educational environment. Empirical measures of the safety level of the school environment allowed us to rank educational institutions on this indicator.

In analyzing the results, we found that in addition to schools with high and low levels of psychological security some schools had differences in the levels of psychological security in the evaluations of the teachers and the students. The existence of an educational environment with a high level of psychological safety for one group of participants and a low for another group raises some questions, the most topical being: (1) What is the reason for participants' differing perceptions of the levels of psychological safety in the same environment? (2) Are these differing assessments due to the fact that the psychological safety of teachers and students is determined by various factors?

To answer these questions a subsample was composed of the 5 schools in which estimates of the level of psychological safety by the teachers and the students had significant differences. The sample consisted of 305 people, 181 adolescent students and 124 teachers. The results are shown in Figure 1.



**Figure 1.** The level of psychological safety of the educational environment in the evaluations of teachers and students

(horizontal axis: the 5 schools participating in the study; vertical axis: the level of psychological safety in the educational environment (scale of 1 to 5, where 1 indicates a low level of safety and 5 indicates a high level of safety).

Comparative analysis of the results showed that, first, the level of the schools' psychological safety in the estimates of both groups of participants was the same. In other words, if we rank the educational institutions in order of the decreasing index of psychological safety of the educational environment resulting from the surveys of the teachers and the students separately, we get no large variations of this index.

Second, in all the schools the level of the psychological safety of the educational environment was higher in the estimates of the teachers than of the students. This result can be explained by considering the age and status-role characteristics of the participants. The educational environment for the teachers was the main place of their professional life, so its axiological content was more significant for them than for the students. Hence, the teachers were more sensitive than the students during the assessment of its psychological safety.

Third, differences in the level of the psychological safety of the educational environment in different schools were expressed more in the evaluations of the teachers than of the students. Differences in the students' evaluations of the level of psychological safety were insignificant. This result not only may strengthen the assumption about the greater axiological richness of the educational environment for teachers but also may indicate that the psychological safety of the educational environment for the teachers and the students can be determined by various factors. In addition, the result was influenced by the teachers' understanding that the psychological safety of the educational environment is a prerequisite for its safety, especially for students.

### ***The influence of the psychological safety of the educational environment for teachers on students' psychological well-being***

Theoretical and empirical analyses of the psychological safety of the educational environment have shown that this parameter is an important characteristic of conditions that enhance the learning process. The psychological safety of the educational

environment affects the mental development of the individual. In this study we verified this assumption: the psychological safety of the teachers influenced the psychological well-being of the students. For this analysis we used one-way ANOVA.

We established that the level of the development of the components of the students' psychological well-being changed depending on the level of the psychological safety of the educational environment for the teachers. In particular, our study revealed the influence of the psychological safety of the educational environment for teachers on these components of emotional well-being: intensity and sensitivity ( $F=2.48$ ;  $p \leq .05$ ), importance of the social environment ( $F=3.76$ ;  $p \leq .01$ ), self-scoring of health ( $F=6.42$ ;  $p \leq .001$ ); life orientation — perception of life as interesting and emotionally intense ( $F=4.63$ ;  $p \leq .001$ ), considering oneself a person with freedom of choice in life ( $F=2.88$ ;  $p \leq .05$ ), considering oneself a person capable of controlling one's life ( $F=2.84$ ;  $p \leq .05$ ); parts of personal creativity — risk-proneness ( $F=4.42$ ;  $p \leq .001$ ), curiosity ( $F=6.11$ ;  $p \leq .001$ ), desire to formulate and solve complex problems and persistence in doing so ( $F=3.30$ ;  $p \leq .01$ ).

The results showed that, in the educational environments with a high level as opposed to a low level of psychological security for the teachers, the students had a more stable emotional state: positive emotions and feelings, a great interest in the social environment, self-confidence, and the ability to change a situation. In these educational environments the students had more cognitive activity and more persistence when performing educational tasks than students in educational environments with a low level of psychological security.

Thus, the empirical study had the following results:

- (1) The level of psychological safety of the educational environment varied considerably in the educational institutions studied.
- (2) There were differences in the teachers' and the students' evaluations of the psychological safety of the environment in the same school.
- (3) Assessment of the psychological safety of the environment in various educational institutions had more expressed differentiation in the evaluations of the teachers than in those of the students.
- (4) The psychological well-being of the students was closely correlated with the level of the psychological safety of the educational environment for teachers.
- (5) Such components of the well-being of students as emotional comfort, self-confidence, a higher level of cognitive activity were developed in the schools with high levels of psychological safety for the teachers.

## **Discussion**

Safety in the school environment for children and adolescents has been a focus of researchers and practical psychologists for quite a long time. However, scientific interest in and the need of social practice for technology that supports the safety of the school environment and its participants do not lose their relevance, despite the fact that rich experience has been gained in the sphere of prevention of situations that violate the safety of children and in relation to minimizing the impact of safety violations.

Providing safety in the educational environment not only is an important task in the management of educational institutions but also is the condition that allows implementation of all the requirements of the society and the state in regard to the education system. One of the problematic issues in creating an effective system for providing and maintaining a safe environment in schools is the development of both a safety model for the school environment and effective technologies for assessing various parameters of a safe environment.

In analyzing research that is theoretical and that also provides a methodological basis for decisions about the development of safety in the school environment as a significant psychological characteristic, we faced a number of difficulties concerning the variety of approaches to this problem. In the development of a safety model for the educational environment, as a rule, safety is determined by the absence of disturbing situations and the absence of on-campus illegal substances, violence, injuries, and so forth. The proponents of one such model (Gastic & Gasiewski, 2008), for example, do not take into consideration the influence of the physical environment on students' experience of safety and the safety of all participants in the school environment.

The views and opinions of Russian and foreign researchers on the content and structure of the safety of the educational environment can be divided into two main groups. The first group, whose views are within the framework of a dichotomous model, considers the physical and social settings of the educational environment; the second group proposes models that reflect a complex structure with many different elements.

One example of a successful school safety model (from the point of view of completeness and usefulness) is provided by American specialists S. Robers, J. Zhang, and J. Truman (2010). They include two indicators in a discussion of safety in the school environment: (1) objective indicators of the facts as documented by the school administration and/or local authorities; (2) indicators based on the opinions and estimates of participants in the educational environment (information about safety inhibition, action taken to provide discipline and safety in the school, personal safety at school and beyond).

Another American model (*Voices from the Field*, 2002) lists the following among key elements in the maintenance of safety for participants in the educational process: exit plans devised with the participation of all representatives of the relevant services; an effective system of school-based interaction and interaction with the relevant outside organizations in the event of an emergency; the opinions and participation of students in the provision of safety. Thus, American researchers pay attention to the fact that the existence of friendly relations of trust between students and administration can make a significant contribution to safety, reduce violence against participants in the educational environment, and prevent dangerous situations. Moreover, students must be active participants in the process of providing for the safety of the educational environment and be able to cooperate on safety issues with parents and administration.

The methodology and results of our research show similarity with works in which (1) *safety* is a term that integrates the ideas of well-being, sustainability, and equal access to resources (Hong & Eamon, 2012) and (2) the concept of *safety* correlates with the results of studies of individual resilience and hardiness (Lam &

McBride-Chang, 2007; Maddi, 2002). We took this work into account in our studies, but at the same time, in contrast with foreign researchers and practitioners, we added both the sociopsychological factors that provide safety in the educational environment and an assessment of the level of psychological safety.

The level of the psychological safety of the educational environment is a significant condition contributing to or impeding the psychological well-being of pupils and teachers. Psychological well-being as a mental state and as a characteristic of personality is one of the most important conditions that ensure the effectiveness of the educational process. Psychological comfort and the lack of emotional and mental stress contribute to intellectual activity.

Our study showed differences between the schoolteachers and the students in their estimates of the psychological safety of the educational environment. This empirical fact can be explained by differences in their social positions: they have different degrees of responsibility for results and different age-related development, including the different features of development and professional development.

The safety of the educational environment determines its significance for students, which is expressed in the desire to belong to it. Involvement in the educational environment promotes the process of social control and the formation of socially significant values. A high level of psychological safety in the educational environment creates protection from all forms of violence, which is a necessary condition for positive intellectual and personal development. The inclusion of basic sociopsychological characteristics in the educational environment is another indicator of its psychological safety, and it promotes a capacity for work and self-confidence.

## **Conclusion**

Many entities provide security: from state security to safety in schools. Each element of this system is badly in need of psychological facilitation of its activities, an understanding of psychological safety features, and the ability to use them to improve efficiency. We determined that a psychologically safe educational environment is one in which most participants have a positive attitude to it, a high level of satisfaction with the characteristics of the environment, and protection against mental violence in interactions. Our study proved that there is a relationship between the psychological safety of the educational environment and the psychological well-being of its participants.

Psychological activity to provide safety precautions in education promotes transfer of the value of safety in public life, reduces the level of violence in the interactions of people, and prevents incongruent behavior and inappropriate activities of people in emergency situations. Thus safety is a resource that provides quality in the educational environment, but the role of education as a psychological resource for safety in society in general is no less important because the entire population of the country receives an education.

The important conclusion for practice is that support for a high level of psychological safety in the educational environment reduces risks and disturbance in the mental development of students.



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## The impact of gender images in commercials on the self-consciousness of adolescents

Olga G. Lopukhova

*Kazan Federal University, Kazan, Russia*

Corresponding author. E-mail: [olopuhova@rambler.ru](mailto:olopuhova@rambler.ru)

Television has a strong impact on gender-identity development. Theoretical analysis shows that the direct perception of different gender characteristics in advertising images has a specific impact on gender self-consciousness, primarily at the unconscious level. The purpose of our study was to uncover features of this impact.

In this study, the effects of advertising images on the gender self-consciousness of teenagers were investigated. Two hypotheses were examined: (1) Perception of gender images in TV commercials has individual variability and is connected with gender features of self-consciousness (gender type of personality, gender differentiation of consciousness, the specifics of gender identification). (2) Direct perception of gender images in TV commercials has a differential influence on the transformation of verbal (cognitive) and nonverbal (emotive) levels of self-consciousness.

The commercials, which were for chocolate, contained different gender types of male and female images (masculine female images, androgynous images, and feminine male images); they used as stimulus materials in an experimental situation involving 61 teenagers. The contents and dynamics of gender self-consciousness in adolescents were investigated using the psycho-semantic method of “multiple identifications.”

We discovered that the girls’ preferences for gender images were more varied than those of the boys. Despite different variants in the gender characteristics in the advertising images, their impact on the gender self-consciousness of the adolescents consisted mostly of gender differentiation and identification with the images of their own gender. In general, in regard to the direct impact in the experimental situation, at the cognitive level, the girls revealed changes in the enhancement of gender identification with images of their gender, and the boys were characterized by the enhancement of gender differentiation. At the level of emotive evaluation, in contrast to the cognitive level, we observed stronger dynamics of the changes in self-consciousness (enhancement of gender differentiation and enhancement of identification with images of ideals and parental images).

The results clearly showed the quite high plasticity of self-consciousness structures and their susceptibility to externally designated images. We concluded that, in their direct perception, features of gender images in TV commercials have specific effects on the consciousness of adolescents: they reinforce already-formed gender categories and self-identification. We consider this research a pilot study, and we are planning to check the results on a more representative sample with different age groups.

**Keywords:** commercials, gender images, identification, gender self-consciousness, adolescent

## **Introduction**

In contemporary society, television has a strong impact on a person's socialization. A number of studies have shown that television is quite important in forming social attitudes (Gladkova, 2013), and even short-term viewing of news messages has a significant influence on individual consciousness (Lavrova & Matveeva, 2012). Great attention is paid to the analysis of advertising images, which often have a gender context (Barner, 1999; Bretl & Cantor, 1988; Collins, 2011; Signorielli, 1989). Advertising, a system for representing objects, not only programs a consumer for the purchase of goods but is also an ideological construct symbolically defining cultural standards of behavior and relations. In this context advertising not only reproduces but also creates certain gender stereotypes (Gerbner, 1999; Pollay, 1986). Researchers believe that advertising images refer viewers to vague and not obvious sense codes that have primary meaning for their personalities because they influence attitudes and identity formation. Gender figurativeness always engenders viewer interest and is used in advertising materials because belonging to a certain gender is the deepest, most basic characteristic of a person (Garst & Bodenhausen, 1997; Morgan, 1982). We agree with Collins (2011), who thinks that gender images in the media have been analyzed well enough at the moment and now it's time for the next stage of research — exploring comprehensively the impact of gender images on audiences.

At present it is impossible to estimate the character of gender constructs transmitted by the media on a unilateral basis. The rather popular previous view that the display of gender relations in advertising affects viewers' stereotyped views of gender roles, in which women are, traditionally, the object of men's desire (Ganahl, Prinsen, & Netzley, 2003), is not fully confirmed now. The aim of advertisers is to create potential and attractive images of surrounding reality. For this reason advertising borrows images and models of social behavior in everyday life; these images present variously transformed gender norms and views, and, as a result, gender images of advertising products also become diverse (Collins, 2011).

At the same time one of the consequences of advertising is devaluation of gender values (Maksimova, 2005). Key notions of gender relationships and values can be taken as nonserious because of their rigid, grotesque, and inadequate application in media; thus, advertising can not only establish gender stereotypes but also transform gender guidelines, and innovative gender images can become embedded in individual consciousness.

In this respect interest arises in the mechanisms of gender identification and the transformation of self-consciousness under the impact of advertising images. In particular the following questions arise: Is the selective preference for advertising images connected with gender self-consciousness? Does the perception of advertising images cause changes in gender self-consciousness?

A study of these issues revealed that the impact of advertising images on viewers' identity is ambiguous and variable because it is determined by a number of factors (Durkin, 1985). Some researchers have found connections among viewers' gender attitudes, adherence to traditional or unconventional gender stereotypes, and personal gender stereotyping of TV images and identification with them (Duncan, Peterson, & Winter, 1997; Oliver & Sargent, 1998; Ruble & Stangor, 1986;

Signorella & Liben, 1984). At the same time there are discrepant data about the nature of the impact of media images on gender-identity transformation. Eisenstock (1984) found that boys and girls with feminine preferences tend to identify more with a male counter-stereotypical portrayal than do masculine children. Richter, Appel, and Calio (2014) examined the influence of stories on the self-concept of femininity and found that reading a story that featured a protagonist with a traditional gender role (focused on motherhood) caused femininity to increase among respondents who were unlikely to engage in social comparison (had no children of their own), whereas no such effect was observed for respondents who had children of their own.

Theoretical analyses show that direct perception of different gender characteristics of female and male images in commercials has a specific impact on gender self-consciousness, primarily at the unconscious (emotive) level. In particular, our experiment examined the following hypotheses:

1. Perception of advertising gender images has an individual variability and is connected with gender features of self-consciousness.
2. Direct perception of gender images in TV commercials has a differential influence on the transformation of verbal (cognitive) and nonverbal (emotive) levels of self-consciousness.

## **Method**

### ***Participants***

Adolescents were the participants of the experiment because at this age they are more sensitive than people of other ages to social patterns and models of gender self-consciousness and identity formation. The experiment was performed at secondary comprehensive schools in Kazan. To confirm the reliability of the results, the experiments was performed twice with different groups from different schools. Students took part in the experiment on a voluntary basis; the 61 students (29 boys and 32 girls) were 15 to 17 years old.

### ***Design of experiment***

The experiment had two stages. In the first stage gender characteristics of the self-consciousness of each participant were discovered using the “multiple-identifications” method. The second stage of the experiment was conducted a week later. The participants were shown five selected commercials with different types of gender images. The participants watched all the commercials and selected the commercial and the image (female or male) they liked; then their gender characteristics were measured again. A new task was added to the procedure: participants had to rate the image that they liked in the commercial according to given scales. Changes in the character of gender self-consciousness were discovered by comparing the results obtained before and after the presentation of the commercials.

Commercials for chocolate were used as stimulus materials because this product is of interest to adolescents and is aimed at both female and male audiences. The five commercials were selected on the basis of certain criteria. All the commercials were well known by the participants as they were shown on popular TV channels

during prime time. In each of the commercials female and male images interacted with each other. All commercials did not advertise the product from an information perspective (they did not state the advantages and quality of the product itself). Instead, they used primarily gender semantics to motivate a consumer's interest in the product. Most characters were close to the participants' age but a little older. This feature was chosen in order to promote identification.

The selected commercials portrayed different variants of gender type and their relationships:

1. The advertisement for *Alpen Gold-tango* portrayed androgynous female and male images and an egalitarian (modern) gender relationship. This was a commercial for black and white chocolate. In it a young girl and boy "fight" for a bar of chocolate during a dance, and neither of them wants to give up. Each presents a combination of gracefulness, sensuality, sexuality, and at the same time assertiveness, aggressive rivalry, and persistence to succeed.

2. The advertisement for *Alpen gold-dark chocolate* portrayed a nondifferentiated male image and a masculine female image. In the commercial a girl displays much activity and independence. From the balcony of an apartment the girl sees a handsome guy who is fixing a sign for Alpen Gold chocolate. The girl resolutely climbs down the water pipe in front of the amazed guy and runs past him: she does not need this guy, she needs chocolate. The girl gets it in a self-determined but risky manner. The boy does not demonstrate any special gender qualities. He is only amazed at the unexpected behavior of the girl.

3. The advertisement for *Korkunov* chocolates portrayed a feminine female image and a masculine male image in a traditional relationship. In a museum of classical paintings and sculptures a man of middle age, handsome and presumably rich and of high social status, offers a young, strange, nice girl a taste of the sweets with the words "Do you like classics? Taste this." Flirtation is clearly the basis of the characters' relationship: a self-confident man's win over a woman.

4. The advertisement for *Milka* milk chocolate portrayed both feminine female and male images and feminine relationships. Against a background of the Alps, a boy and a girl are hugging tenderly, demonstrating a state of bliss and serene happiness after having tasted the chocolate.

5. The advertisement for *Snickers* chocolate bars portrayed masculine male and female images and a modern relationship. Two boys and a presumably famous ballet dancer in a tutu are playing basketball. The ballet dancer is portrayed rather toughly. She is knocked off her feet. Rising up, she answers rather rudely her companions' taunt "What is this, a ballet? Play more severely." She eats a chocolate bar and transforms into a guy ready to play basketball in a tough, male manner.

### ***Method of diagnosis***

Diagnosis of the gender characteristics in the self-consciousness of the experiment participants was performed using the multiple-identifications method (Petrenko, 2010). The goal of the method is to rank role positions (in this study, images of gender identification) according to certain parameters. In this case, the following role positions were offered:



- “Me in the present” (self-image)
- “Me in the future”
- “My father”
- “My mother”
- “An ideal man from my point of view”
- “An ideal woman from my point of view”
- “A typical modern man”
- “A typical modern woman”
- “A traditional man (as I view him)”
- “A traditional woman (as I view her)”
- “An image in the commercial that I like” (offered during the second phase of the experiment)

The procedure for measuring the gender characteristics in self-consciousness consisted of two parts. In the first part, the respondents had to rate 27 items (gender characteristics of personality) for each role position. The characteristics were taken from the Bem Sex Role Inventory questionnaire revalidated in compliance with Russian culture (Lopukhova, 2013). In this questionnaire the Masculinity, Femininity, and Neutral subscales accord with contemporary gender stereotypes in Russian society. The Masculinity and Femininity subscales (factors) indicate stereotypical personality traits, and the Neutral subscale includes traits common for both men and women. Each of the subscales includes 9 items. Samples of the Masculinity items are “brave,” “having a strong personality,” “forceful,” “having the ability to be at the head,” “dominant.” Samples of the Femininity items are “compliant,” “shy,” “tender,” “compassionate,” “soft-spoken.” The items were arranged on the 5-point Likert-scale (from 1 — “characteristic is not evident” to 5 — “high degree of evidence of characteristic”). To calculate subscale scores, the sum of the scores of the items was divided by the number of items in each subscale.

In the second part, the same role positions were estimated by ranking eight given colors (dark blue, green, red, yellow, violet, brown, black, and gray) in accordance with the color each role position is associated with. The Color Test of Relationships (Etkind & Bazhin, 2000), which is the basis of this part of the diagnosis, has as a foundation the belief that essential relationships of nonverbal components of attitudes to other, essential ones and to oneself are reflected in their color associations. Color sensory ability is closely connected with the emotive component of the psyche and thus has been used in projective and psychosemantic approaches to diagnoses. The respondents chose the scale numbers used to evaluate gender images by using computers in a computer classroom.

The gender characteristics in the self-consciousness of the participants were discovered through their identification with certain gender images. Intercorrelation analyses were conducted separately of all the scale numbers chosen by each respondent for the first and second parts of the questionnaire. A positive correlation coefficient showed identification with the images in a respondent’s consciousness; a negative correlation coefficient showed no identification with the images. In particular, a correlation coefficient in the range  $1 \geq r \geq 0.6$  reflected

close identification with the image;  $0.5 \geq r \geq 0.3$  reflected some identification;  $0.2 \geq r \geq 0$  indicated no identification;  $r \leq 0$  showed the contraposition of the images in consciousness. In addition, the ranking of each image on the Masculinity and Femininity scales and their mutual positions in this semantic space (according to the data from the first part of the questionnaire) were measured; this procedure provided the opportunity to detect the gender characteristics in the self-consciousness of each participant.

## Results

According to the results of the diagnosis at the cognitive (verbal) level, the gender identification of most participants corresponded to their gender. The results of the first part of the questionnaire showed that the self-consciousness of most participants was gender-differentiated. Gender-differentiated consciousness manifested itself in the men’s and women’s images, which the respondents evaluated differently. Features of their identity on many items of the Masculinity and Femininity subscales were highly correlated. Thus, most of the participants had a firm self-assessment. As an exception, one boy did not have a differentiated gender self-consciousness as was manifested in his low estimations of gender features and absence of identification with both male images (“an ideal man,” “my father,” “me in the future”) and female images. Another boy had feminine characteristics of self-consciousness: a high estimation of self-image on the Femininity subscale and self-identification with female images.

The results of diagnosing gender identification with the color-associations method gave another picture of many adolescents’ self-consciousness. At the emotive level some girls showed diffuse gender identification: they identified with both female and male images. Rather often we observed the father’s image perceived as feminine and strongly identified with female images (“an ideal woman,” “a traditional woman”), and the mother’s image perceived as being close to both the male and the female ideal images.

At the emotive level of boys’ gender consciousness, identification with the mother’s image was typical and was rather strong in some boys, and at the same time a gender-undifferentiated attitude to other images was present.

At the second stage of the experiment, when adolescents selected a commercial and an image, participants’ preferences divided as shown in Table 1.

**Table 1.** Frequency distribution of choices of commercial by girls and boys

Commercial for chocolate	Number of choices	
	Girls (n=32)	Boys (n=29)
Milka	8	1
Snickers	4	27
Korkunov	9	–
Alpen Gold–tango	10	1
Alpen Gold–dark chocolate	1	–

The girls' gender-image preferences were clearly more varied than those of the boys. Most boys preferred the commercial for Snickers, which portrayed masculine male and female images in the context of their egalitarian (modern) relationships. None of the boys selected the commercial with a masculine male image and a feminine female image, which demonstrated traditional gender relationships. These results may mean that the boys were more oriented to modern relationships and masculine properties. In addition, in the Korkunov commercial the male image was closer by age to these adolescents' fathers, while in the commercial for Snickers the male image and the activity (basketball playing) were closer in age to the boys in the study than they were in the other commercials. In the Milka and Alpen Gold—dark chocolate commercials the male images did not take any energetic actions and did not display any of the bright characteristics that might promote boys' identification with them. At the same time, nine girls preferred the Korkunov commercial; this preference was probably caused by the male character's "father age" and can easily be explained by reference to psychoanalytical positions.

Certain tendencies in the adolescents' self-consciousness of gender characteristics and the connections of their selections are difficult to determine reliably from the point of view of statistics as the sample was not big enough and the boys did not make a variety of choices. The analysis of available variants was based on the adolescents' preferences in the commercials for images of a certain gender type. Gender characteristics of identity and changes in cognitive and emotive levels in the perception of gender semantics were detected in the images selected by each participant.

The girls whose choice of commercial was Milka had mostly feminine self-assessments. Consciousness on a cognitive level was gender-differentiated (male and female images were clearly separated). The male images were identified with the "an ideal man" image in the following order: "a traditional man," "my father," "a typical modern man." The female images were identified with the "an ideal woman" image in the following order: "my mother," "me in the future," "a traditional woman," "me in the present." After viewing the commercials and selecting the Milka plot as their favorite, the girls identified the image in the commercial that they liked best with "me in the present," "a traditional woman," "me in the future," "my mother"; these images also became closer to each other. Their assessment of the male images did not change significantly.

At the emotive level, consciousness was not differentiated by gender. In particular, the "me in the present" image was identified with "my father," "a traditional woman," "an ideal woman," "my mother," "a typical modern man," "an ideal man," and "me in the future." The "my father" image was close to both the female and male images. The "an ideal man" image was equated with "an ideal woman" and was close to "a typical modern man." The female image in the commercial was taken as an ideal feminine image that actualized the femininity of other female images in consciousness and enhanced the significance of femininity. "An ideal man" and "an ideal woman" became closer to the female images. After the girls selected a female image in the commercial as their favorite, the image of the father, which was close to the female images, became more feminine, and self-image became identified with female images to the highest degree.

At the cognitive level the girls who chose the Snickers commercial identified their self-image with the “me in the future” image, which was close to “my mother,” “an ideal woman,” and “a traditional woman.” Their self-image contrasted with all male images. The image of “my father” was closest to “an ideal man,” “a traditional man,” “a typical modern man” (0.88). After the girls watched the commercial, the impact of gender differentiation in consciousness at this level increased.

At the emotive level, the girls did not clearly differentiate gender consciousness: self-image was identified with both the female and the male images in the commercial. After watching the commercial, they identified their favorite gender image with “my father,” “an ideal man,” “a typical modern man,” “a traditional man”; in other words, the image in the commercial that they liked best was a masculine image. The choice of the masculine image by these girls was correlated with a masculine mother’s image at the emotive level of gender consciousness. In turn the girls took this image of the mother as an ideal after they watched the commercial. Thus, for these girls, their favorite image in the commercial became closer to their self-image and enhanced the masculinity of the “me in the future” image.

At the cognitive level the girls who selected the Korkunov commercial had gender-differentiation enhancement: for them, the female and male images were opposed, and their self-identification with the female images was strengthened. In other words, watching the commercial increased the femininity of these girls’ self-consciousness. For that reason, it is interesting to note that the girls selected a male image in the commercial as the one they liked; they identified this image with “an ideal man.” At the emotive level, the changes were stronger than at the cognitive level. Their viewing of the commercial enhanced the “my mother,” “an ideal woman,” “my father,” “an ideal man,” and “me in the future” images. The “me in the future” image was identified with their favorite image in the commercial. The identification with “an ideal woman” increased (coefficient was 0.38, became 0.71). The change of identification with “an ideal man” image was the strongest: the coefficient became 0.52, although the opposition had previously been -0.74. On the emotive level, the image from the commercial that they most liked was perceived as an ideal, and this identity reinforced the value itself and its adoption by the girls.

The girls who selected the commercial for Alpen Gold–tango (androgynous images) did not have clearly differentiated gender consciousness at the cognitive level. Their self-image was identified with female images and was contrasted with male images, or was far from them. However, the image of the mother, for example, was equally close to the image of the “ideal woman” and the image of the “ideal man” and was also close to the image of “my father.” Viewing the commercial and selecting their favorite image increased their gender differentiation in consciousness. The image in the commercial influenced perceptions of male images by making them more gender-typed. At the emotive level, the consciousness of these girls was clearly gender-typed: they identified with images of the same sex and contrasted them with images of the opposite sex. Viewing the commercial and choosing their favorite image increased their gender differentiation in consciousness significantly; all coefficients were close to extreme values (0.87–0.98).

The boys who selected the Snickers commercial had a more gender-differentiated consciousness at the cognitive level than did the other boys. Viewing this commercial and selecting their favorite image increased gender differentiation in

consciousness. They identified the image in the commercial that they most liked with “a traditional man,” “my father,” “an ideal man,” “a typical modern man,” and “me in the future.” The “my mother” image was opposed to this image as were all other female images. Their favorite image from the commercial was identified with the image of “an ideal man.” The results indicated that the boys enhanced their ability to differentiate images based on gender after viewing the commercial.

These boys had non-gender-typed consciousness at the emotive level. At this level, self-identification was connected to a parent image. Self-image was identified with “me in the future” and was strongly identified with the image of “a typical modern woman” (0.78) and with “my father,” “my mother,” “an ideal man,” and “an ideal woman.” Identification with “my father” (0.59) was weaker than with “a traditional man” image (0.78). Viewing the commercial and selecting a favorite gender image increased the gender differentiation of self-consciousness at this level. For example, “a typical modern woman” became identified with “a traditional woman” (coefficient was 0.09, became 0.77) and became contrasted with “a traditional man” (coefficient was 0.58, became  $-0.09$ ).

We also analyzed cases in which only one person preferred a commercial. The self-image of the girl who chose a masculine female image in the plot of the Alpen Gold–dark chocolate commercial was masculine. After she watched the commercial, her self-image became identified with her favorite gender image in it. Moreover the masculine female image in the commercial subjectively performed the role of ideal for female images. In other aspects gender differentiation in self-consciousness increased a little.

The boy who selected the Alpen gold–tango commercial (androgynous images) did not divide the images based on feminine/masculine grounds. His favorite image from the commercial was identified with “an ideal woman,” “my mother,” “a typical modern woman,” and his self-image. The “me in the future” image began to be identified with the “my mother” image at the emotive level. Under the influence of the commercial, this boy’s gender differentiation in consciousness increased, although it was still androgynous.

The boy who selected the commercial “Milka” was characterized by feminine self-consciousness both in self-evaluation and in identification with female images. After he had watched the commercial and selected an image from it (a female image was selected), his evaluation became more masculine, and his perception of other images came to be more gender differentiated. The female image from the commercial was taken as “an ideal woman,” which in turn enhanced the masculinity of his gender self-consciousness.

## Discussion

In general in our experiment changes that were the direct result of the impact of gender images in the commercials were characterized at the cognitive level of the girls by enhancement of identification with images of their gender, and at the cognitive level of the boys they were characterized by enhancement of consciousness of gender differentiation. At the emotive level, in contrast to the cognitive level, we observed stronger dynamics of the changes in self-consciousness (enhancement of gender differentiation and identification with gender ideals and parental images).

The obtained data cannot be interpreted from statistically significant regularity positions. Nevertheless, the investigation showed the possibilities of using psycho-semantic technology to diagnose self-consciousness in research work devoted the impact of images (in our case, these were advertising images) on consciousness structure and identification changes. The research clearly showed the quite high plasticity of self-consciousness structures and their susceptibility to externally designated images.

We also found that, despite different variants of the gender characteristics of the images, in which masculine female images, androgynous images, and feminine male images were presented, their impact on gender self-consciousness consisted mostly of gender differentiation and enhancement of identification with images of the same gender. These data are consistent with the findings of Sestir and Green (2010) that, under conditions of high identification with a character in a film, the traits that are displayed by this character are temporarily increased within participants' self-concept. Furthermore, it was also discovered that a change in gender self-consciousness under the influence of commercials does not necessarily occur through a recipient's identification with the image in the commercial. The semantics of an image in a commercial can play the role of "a launching mechanism" for identification processes with other images present in self-consciousness.

Probably the obtained results were influenced by the directed and specially arranged reflection of gender constructs; this reflection occurred because the adolescents rated the given gender images and focused their attention on the analysis and selection of images in the commercial. Richter and others (2014) investigated a similar effect: reading a story that featured a protagonist with a traditional gender role (focused on motherhood) increased femininity only among readers who were deeply transported into the world of the story.

We consider this research a pilot study and are planning to check the results on a more representative sample with different age groups.

## **Conclusion**

In our research, we discovered that gender images in a commercial affect adolescents' gender self-consciousness only in the area of already-formed tendencies and categories. Individual differences in the perception of gender images in commercials by adolescents and in the effects on their gender self-consciousness are strong and depend on several factors related to the adolescents:

- degree of gender-differentiation self-consciousness
- self-identification with traditional or modern gender images
- gender identification
- perception of gender aspects transmitted by the commercials
- levels of self-consciousness at which the perception of the images in the commercials takes place (cognitive or emotive)

General trends are evident in the selective attention of adolescents to gender images linked to their gender self-categorization: masculine adolescents prefer



masculine images in commercials; feminine adolescents focus on the femininity features of these images. Perception and evaluation of gender images in commercials affect changes in gender identity on both cognitive and emotive levels.

In the commercials the perception of gender images on a cognitive level mostly reinforced girls gender-role identity and made gender differentiation in boys' consciousness stronger. On an emotive level, changes in categorization were stronger and consisted in increasing identification with images of parents and of gender ideals.

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## **The value-motivational structure of the innovativeness of young students**

Olga V. Mikhailova

*Peoples' Friendship University of Russia, Moscow, Russia*

Corresponding author. E-mail: [olga00241@ya.ru](mailto:olga00241@ya.ru)

The study of personal qualities' development and the peculiarities of value-motivational aspects in groups with various manifestation levels of these qualities are of particular interest for contemporary researchers as well as for practicing psychologists who develop psychotechnologies aimed at personal value-motivational sphere management. This article suggests new approaches for analyzing and studying value-motivational aspects of personal activity, predetermining innovation activity. It also provides an analysis of a comparative empirical study that evolves value-motivational characteristics in students with various innovativeness levels.

The author submits a detailed theoretical analysis of innovation behavior based on manifestations of personal value-motivational activity. Resulting from the given theoretical analysis, a suggestion is made that the manifestation and development of personal potential is determined by values and motives. Personal innovation potential is regarded as an effective combination of various activity forms, and innovativeness is a personal quality that is manifested by a form of effective activity. Currently, psychologists are highly interested in evolving value-motivational structure of personal innovativeness.

The given article discusses the results of an empirical study aimed at revealing value-motivational peculiarities of students in groups with various levels of innovativeness manifestations. Indicative peculiarities of value-motivational characteristics are revealed in groups with low, middle and high levels of innovative qualities. Furthermore, gender differences in innovativeness manifestation and value-motivational characteristics of this quality in young men and women are thoroughly described.

New data concerning the personal and gender specifics of the value-motivational sphere and innovativeness manifestation in young adults are presented using a thoroughly described research strategy as well as results substantiation.

**Keywords:** innovativeness, innovative potential, value-motivational sphere of innovative personality.

## **Introduction**

In our current society, the study of problems of demonstrating individual creativity has determined the necessity of creating new forms of management in personality development. To determine boundaries between personal success, effectiveness and efficiency, new leaders have emerged, whose activity can be beneficial and harmful to themselves and society. The prospect of psychological trends in character research is attributed to the identification of youth's value-motivational aspects of behavior and activities. Additionally, effective implementation of socio-psychological activity control technologies for the socio-economic development of society is involved as well.

Russian and foreign scientists have indicated common psychological activities of an individual as idiosyncrasy markers (Golichenko, 2004). The success of self-fulfillment is determined by a set of personal qualities that enable a person to achieve effective results. The phenomenon of self-fulfillment, including educational and professional activities, is inextricably linked to self-development and the active management of personal resources. One of the markers that characterize the social performance of self-fulfillment is the innovativeness of a personality.

An outstanding psychologist, Nebylitsin, defines a general mental individual activity as a psychological idiosyncrasy characteristic: "Mass action means a bundle of personality traits that predetermine primary individual needs in effective factuality acquisition. Such a drive state can be presented either in mental, motor (including speech ability) or social (communication) contexts. Accordingly, a number of mass action types can be singled out" (Nebylitsyn, 1976, p. 251). Each activity type has a "rather complicated multifactorial structure and various forms of psychological manifestations" (Nebylitsin, 1976, p. 241). According to Nebylitsin's findings, the most current personality analysis trends are as follows: 1) the activity is considered to be an act of "self-expression" and an arrangement of initiation and self-actualization; 2) the activity is regarded to be an arrangement of the effective acquisition and reality transformation (i.e., it is viewed in a close mutual connection with the productivity of cooperation with the environment); 3) the activity comprises a dynamic procedural aspect; 4) the activity represents a personal aspect, which is determined by relationships and motivations of the individual, who manages its direction, quality and level; and 5) the qualitative features of individual activity are determined by its dominant view and expressed in a definite form (Krupnov, 1996).

Consequently, contemporary personality psychology regards mental activity as a human activity characteristic. The activity can be viewed as a valuable way of modeling, structuring and actualizing communication and conduct by a personality. The activity is a characteristic of performance with an independent immediate power. It is expressed in free, conscious, internally necessary work. A bundle of socio-psychological traits and qualities determine activity and lets a personality manage it by means of values and motives. Consequently, socially oriented value-motivational creative activity can be considered (Mikhailova, 2010).

Social and personal values stand out as a human activity mark that allows for estimating and using activity in relation to reality. The dualities of truth and lying, admissible and forbidden, and fair and unfair play an important role in a person's

construction of demands and motives, idiosyncrasies and activities. The individual does not always apprehend values and does not lose the regulatory influence on personal enhancement (Zinchenko, 2010).

The system of values constructs individual values and motives. Value-objective norms and mindsets influence the development of the motives that predetermine individual effectiveness.

Innovative conduct is substantially predetermined by the peculiarities of values and motives, the structure of which has not yet been studied. The search for differences and relationships between the value-motivational system and innovative manifestations will reveal the system of value-motivational characteristics (Mikhailova, 2012).

Innovative and initiating causes of behavior are the foundation of innovative activity organizations and are correlated with the study of individual potential. The concept of human potential is characterized by various trends of its study: social and organizational, economic, social and environmental, and existential. The notions of psychophysiological capacity (V.I. Medvedev, G.M. Zarakovsky), professional and personal potential (V.N. Markov), adaptive potential (A.G. Maklakov), leadership potential (A.N. Zankovsky) innovative potential (V.E. Klochko, E.V. Galazhinsky), and intellectual potential (B.G. Yudin) have been described.

The common feature of all of the above-mentioned approaches is that personal potential is determined by means of successful self-realization in a particular activity and resolved into a set of abilities and skills, as well as by the fulfillment of this activity. The attributive schemes and strategies are the key variables for understanding the nature of personal potential as a self-regulation potential (Leontiev, 2001).

The attributive schemes are developed under the influence of personal experience. This notion is called the representation system of ideas about the world structure; its orientational basis impacts personal decisions, activities and aims. The strategy is a stable focus of our conduct or a sustainable method of behavior that is consciously selected and subjected to deliberate changes. It is a stable mark for managing its own voluntary action. According to A.D. Leontiev's theory, the structure of personal potential consists of the following components: optimism; hardiness; personal self-regulation; self-efficacy; ambiguity tolerance; control over action; reflectivity; and subjective vitality (vital power) (Leontiev, 2011). Each of the above mentioned features is a rather complex multifactorial quality and involves comprehensive theoretical and empirical analysis.

Studying personal potential, instead of the human assets research problem, provides an opportunity to define the following perspective research trends: 1) the nature of the variables characterizing personal potential; 2) the methodology of grounding and empirical definition of the dominant components; 3) the research strategy and research methods tool set; 4) the establishment of a new diagnostic tool set; 5) technology support elaboration and the formation of a personal development potential at various ages; and 6) the development and maintenance of personal psychological assets (psychological resources).

It is advisable to use the systemic and functional approach to solve the formulated perspective trends of personal potential research. This trend in the study of personality originated from the following Russian psychological theories: the inseparability of dynamic, meaningful and productive mental activity aspects

(Brushlinsky, 1978; Nebylitsyn, 1976, Rubinstein, 1973, Krupnov, 1990, etc.), the unity of the personal and individual subject composition (Ananiev, 1980; Golubeva, 1983, 1993; Lomov, 1984, Merlin, 1985, etc.), and the systemic nature of the personal relationship (Abulkhanova-Slavskaya, 1991; Bodalev, 1988; Myasishev, 1960, Krupnov, 2006).

S.L. Rubinstein indicated that the systemic nature of personal traits represents the fusion of images of thoughts, feelings, and impulses in unity and interpenetration with the objective consecution and the results of actions. Nebylitsyn's theory was based on the study of the connections between meaningful, dynamic and productive aspects. Ananev suggested that individual personality traits comprised not only presentational relationships but also the methods of its fulfillment, motives, and emotional, intellectual and productive characteristics. Bodalev claims that personality traits are the integration of private relationships to various events. This integration represents the unity of knowledge, experience and behavior. The analysis of theoretical statements indicates that personality traits are multifactorial as opposed to a single interpretation (Mikhailova, 2013).

In the early 1980s, the Russian academician Alexander Ivanovich Krupnov introduced a well-founded, systemic and dispositional approach to the study of personality and its traits (Krupnov, 2006). According to this systemic and dispositional approach, innovative personal potential can be considered to be a highly effective combination of personal activity forms that are required for practical innovative fulfillment.

Innovativeness is viewed as a further creativity staging point, a benchmark of immediate assessment and a practical embodiment of innovations, which is a particular socio-organized practice. Therefore, innovativeness can be defined as a person's ability to understand, receive, socially estimate, spread, implement and use innovations. Innovativeness can be fully expressed in business activity (Mikhailova, 2012).

The bases of innovative activity development are the values and motives of an individual. Consequently, the value-motivational system actively determines personal innovativeness by acting as both a prerequisite and a blocker.

The value-motivational relationship with innovative activity is defined as a set of internal necessary and available external conditions and socially established values.

The system of values is the "basis" of a relationship with the world. Values can be considered to be relatively stable, socially conditioned, selective and conscious attitudes towards unspiritual and spiritual matter in human society. The motivational sphere is traditionally indicated in various activities as a link that makes action purposeful and determines personal potential. Problems of motivation and motives have been widely covered in the works by Russian and foreign psychologists: V.G. Aseyev, E.P. Ilyin, V.I. Kovalev, K. Levin, A.N. Leontiev, G.F. Lomov, A. Maslow, V.E. Milman, J. Nyutten, S. L. Rubinstein, B.A. Sosnovsky, H. Heckhausen, etc. (Sovetova, 2000).

The research and development of value-motivational activities in innovative participants is essential for every sphere of professional activity. The transition from a traditional system to innovative fulfillment requires new methods of solving



problems. This approach implies a serious stereotype breakage that is associated with changes in the approach to the objectives, forms and methods of activity.

The indicators of motivational readiness for innovativeness are the following (Koptyaeva, 2009):

Interest expression in innovation and its dynamics — a positive attitude towards innovation, and the desire to be involved; experience of the positive emotional states regarding innovation, striving desire to assess one's own professional and personal experience from the point of innovation; positive attitude towards the perspectives of innovation;

- Self-actualization maturity motive — awareness of one's own capabilities, the necessity to improve oneself, growing more confident;
- Overcoming difficulties maturity motive — awareness of one's individual insufficient achievements and the desire to improve them; understanding of one's problems and independence in its solving them and taking responsibility for them.

The problem of innovative activity motivation should be considered a problem of acquiring the adequate personal meaning of professional activities. Due to the mismatch of motives, discomfort results in the labor deprivation of personal self-development and creativity. It turns from a personal value to the means of one's livelihood. The management development of personal potential is very important to achieve a creative and a productive labor value in a modern practice. Studying the needs, interests and values of youths in an educational environment should influence new generations of motive systems. Personal activity must be expressed using constructive behavior and activities. Consequently, if personality development is properly managed, the value-motivational activity is expressed in new activities.

In psychological studies, activity is considered to be a specific human form of an active attitude towards the world. The essence of that form consists of a reasonable change and world transformation based on the development of available forms of culture. Innovative activity aims to transform existing forms, including the methods of professional activities and awareness of them and the creation of new aims as well as the means of realization. Therefore, the result of this activity leads to an expectation of the progress of society. In the studies by Anokhin, Lomov, and Leontiev, the psychological analysis of activity reveals its structure. The activity is viewed as a dynamic action system, arising and reorganizing under the controlling influence of complicated motivational interactions.

According to Lomov, the main activity factors are the following: motive, purpose, plan, current information processing, immediate image (and a conceptual model), decision-making, results checking and corrective actions (Lomov, 1984).

Because multiple relationships with the environment are presented in a relatively stable personal motivational sphere, any activity, as well as innovativeness, usually correlates with more than one motive. Therefore, it becomes multimotivational.

As most motives are not recognized, except conscious motives, and are hidden from other people, one has to answer the actual questions: which direction, which actions, and which orientation are used in the context of value-motivational personality traits?

The motivational component of innovative activities needs to be considered in two ways: the perspective of professional motivation in the overall structure of motives and the estimation of the individual concern to changes (i.e., susceptibility features that determine the content of creative professional directivity after identifying needs in innovations) (Mikhailova, 2012).

The diagnosis of the value-motivational innovative activity and elaboration of development activity programs are fundamental conditions of innovative personality potential improvement and self-fulfillment in professional activities (Lebedeva, Bushina, Cherkasova, 2013).

Consequently, the definition of innovative development in young students and the identification of the similarities and differences among value-motivational aspects are important for obtaining new data on value-motivational personality traits.

## **Method**

### ***Participants***

The article provides an analysis of the characteristics in the value-motivational structure in groups with various levels of innovative manifestations. One-hundred-forty students studying at the Faculty of Economics (Peoples' Friendship University of Russia) were involved in the empirical research. Their ages ranged from 19 to 21 years old. The following diagnostic methods were provided: "The scale of innovative personality traits self-assessment" (N.M. Lebedeva, A.N. Tatarko); "Motivational personality structure questionnaire" (E. Milman); and Real structure of personal value orientations questionnaire (C.C. Bubnova).

### ***Materials***

To determine the innovativeness parameters, a self-evaluation scale of the innovative qualities in a personality was used (N.M. Lebedeva, A.N. Tatarko). This questionnaire was designed to measure attitudes towards innovation. The questionnaire consists of 12 statements with which the respondents could compare themselves (possible answers — "Not like me at all", "Not like me", "A little like me", "Like me", "Very much like me"). According to the responses, the general level of innovativeness (index of innovation) is revealed.

For the qualitative analysis of innovativeness, questions of particular subscales were used:

- 1) Creativity: 4, 5, 8, and 10.
- 2) Risk for success: 3, 6, 11, and 12
- 3) Focus on the future: 1, 2, 7, and 9.

Indicators on all of the scales and the personal innovativeness index ranged from 1 to 5 points.

To determine value orientations, we used the technique "Diagnostics of the actual structure of personal value orientations" by S.S. Bubnova, which is designed to study the implementation of personal value orientations in real life. The technique contains 66 closed questions with which the respondent can agree or disagree (pos-

sible answers — “Yes” or “No”). The responses reveal the prevailing values of a respondent. The technique includes 11 scales. The degree of each component in the multistructural personal value orientations representation is determined by using a key represented in an answer form. Accordingly, the number of positive responses in all eleven columns was calculated (described below).

To determine the motivational structure, the questionnaire of the personal motivational structure by Milman was used to identify the predominant types in human motivation. The technique also identifies some steady personal trends: general and creative activity, desire to communicate, comfort and social status maintenance and others. Based on all of the responses, a judgement on working (business) and the everyday orientation of an individual can be made. The questionnaire consists of 11 statements relating to life aspirations and particular aspects of a person’s lifestyle and includes the following types of motivation:

1. “Life maintenance”
2. “Comfort”
3. “Social status”
4. “Communication”
5. “General activity”
6. “Creative activity”
7. “Social utility”

## Results

As a result of research conducted using the questionnaire “Self-evaluation scale of personal innovative qualities” (N.M. Lebedeva, A.N. Tatarko), student groups with high (20%), middle (59%) and low (18%) levels of innovativeness were distinguished. Further correlative and factor analyses were used to describe the peculiarities of value-motivational aspects in groups with various levels of innovativeness. The calculations were made using the computer programs Statistica and Statgraphics.

Data factor analysis showed that the group with a low level of innovativeness focused on values, such as the search for pleasure (0.76), love (0.88), recognition and respect of people and their impact on others (0.75) and social activity for achieving positive changes in society (0.79).

The group of students with a low level of innovativeness focused on the future and valued a high level of material well-being (0.85), communication (0.66) and high social status and people management (-0.62). The leading motives of the group were overall activity (0.71) and everyday motivation (0.68) (table 1).

The results of the factor analysis of the group with an average level of innovativeness revealed the following structure of values – pastime and recreation (0.65); high material well-being (0.71); search for and enjoyment of the beautiful (0.72), help towards and compassion for others (0.69); love (0.68); new knowledge about the world, nature and man (0.75); high social status and people management (0.81); recognition and respect of people and their impact on others (0.90); and social activity to achieve positive changes in society (0.92). Although this group did not focus on the future and the development of their creative potential, the system of

values and future motivational aspects were not clear. Furthermore, the structure of the dominant motives was not revealed.

**Table 1.** Factor analysis of the values and motives of the group with a low level of innovativeness

		Factors			
		1	2	3	
Innovative Components	Creativity	-0.51	-0.4	0.23	
	Risk for success	0.53	0.19	0.34	
	Focus on the future	0.53	<b>0.73</b>	0.17	
	Pastime, recreation	0.53	-0.005	0.11	
	High level of material well-being	0.04	<b>0.85</b>	-0.24	
	Search of pleasure	<b>0.76</b>	0.09	0.103	
Value Components	Help towards and compassion for others	0.56	0.42	-0.43	
	Love	<b>0.88</b>	0.01	-0.006	
	New knowledge about the world, nature and man	0.18	-0.44	-0.26	
	High social status and people management	0.59	<b>-0.62</b>	0.07	
	Recognition and respect of people and the impact on others	<b>0.75</b>	0.502	-0.17	
	Social activity for achieving positive changes in society	<b>0.79</b>	-0.48	-0.06	
	Communication	-0.009	<b>0.66</b>	0.23	
	Health	0.47	-0.08	-0.19	
	Motivational components	Life maintenance	-0.04	0.50	-0.13
		Comfort	0.24	0.11	-0.52
Social status		0.29	0.31	0.34	
Communication		-0.03	-0.53	-0.23	
Overall activity		0.23	0.49	<b>0.71</b>	
Creative activity		-0.30	-0.45	0.03	
Social utility		-0.12	0.01	0.59	
Everyday motivation		0.30	0.04	<b>0.68</b>	
Work motivation		0.14	0.16	-0.46	

In the group with a high level of innovativeness, the structure of value orientations was represented by indicators including new knowledge about the world, nature and man (0.81); love (0.74); high social status and people management (0.83); recognition and respect of people and their impact on others (0.81); and social activity to achieve positive changes in society (0.95).

This group of students focused on a future high level of material well-being (0.72), help towards and compassion for others, (0.65), search for and enjoyment of beautiful things (0.70), and recognition and respect of people and the impact on others (0, 81)

The dominant motives and values were the drive for creativity (0.64) and health (0.78) (Table 2).

**Table 2.** Factor analysis of the values and motives of the group with a high level of innovativeness

		Factors		
		1	2	3
Innovative Components	Creativity	-0.11	0.38	<b>0.64</b>
	Risk for success	-0.20	0.08	-0.22
	Focus on the future	0.38	<b>-0.73</b>	0.002
	Pastime, recreation	0.35	0.41	-0.27
	High material well-being	0.20	<b>0.72</b>	0.01
	Search for and enjoyment of the beautiful	0.56	<b>0.65</b>	0.17
Value Components	Help towards and compassion for others	0.47	<b>0.70</b>	0.16
	Love	<b>0.74</b>	0.11	0.03
	New knowledge about the world, nature and man	<b>0.81</b>	-0.06	-0.20
	High social status and people management	<b>0.83</b>	0.13	0.06
	Recognition and respect of people and the impact on others	0.50	<b>0.81</b>	0.06
	Social activity for achieving positive changes in society	<b>0.95</b>	0.07	-0.04
	Communication	0.05	0.54	0.42
	Health	0.04	0.34	<b>0.78</b>
	Life maintenance	0.01	-0.14	0.46
	Comfort	-0.06	0.48	-0.54
Motivational components	Social status	0.10	-0.45	0.16
	Communication	0.51	0.06	-0.001
	Overall activity	-0.19	-0.08	0.57
	Creative activity	0.12	0.11	0.54
	Social utility	-0.53	-0.18	-0.18
	Everyday motivation	0.03	0.05	0.55
	Work motivation	-0.48	0.27	-0.02

## Discussion

The self-evaluation of innovative qualities identified groups with high, medium and low levels of innovativeness. The most numerous group of students had an intermediate level of innovativeness. This result is explained by the insufficient development of the innovative potential of students.

Based on a comparative analysis of the value-motivational characteristics of student's innovativeness using the Kruskal-Wallis test and a correlational and factor analysis, the significant value-motivational characteristics were revealed. There was a distinctive feature in each of the groups:

- The values of the respondents with a low level of innovativeness contained: *a pleasant occupation and level of recreation and a commonsense motivation, although it was focused on high social status and people management;*
- Respondents with an average level of innovativeness identified such value-motivational characteristics as *survival, comfort, and communication;* in the motivational structure, *commonsense motivation, working motives and social utility motives, and total activity* dominated.
- In the group of respondents with a high level of innovativeness, the motives of creative activity and total labor activity were the dominant value orientations.

As a result of the factor analysis, three groups of factors constituting the value-motivational characteristics of students' innovativeness were identified. The first group of factors was the structure of values in each group. The second group of factors included value-motivational features, with a focus on the future, and the third group of factors determined the dominant motives.

In the group of students with a low level of innovativeness, the following characteristics were dominant: *enjoying beauty, love, acceptance and respect of people and the impact on others to achieve positive change in society.* When focusing on the future in this group, the following were associated with *wealth, high social ranking and people management.* The leading motives of the group were *general activity and commonsense motivation.*

The results of the factor analysis in the group with an average level of innovativeness revealed the next diverse structure of values: *enjoying occupation, recreation, and welfare; search and enjoying beauty; help and mercy for others; love; new knowledge in the world, nature, and humans; high social status and people management, recognition and respect of people and their impact on others; and social activity to achieve positive change in society.* The group was not focused on the development of their creative potential in the future, and the system of values and motivational aspects and the structure of the dominant themes were not defined in the study. The obtained data indicate the diversity and unclear structure of the value-motivational process.

In the group with a high level of innovativeness, the following value orientations were discovered: *new knowledge of the world, nature, and humans; high social status and people management; recognition and respect of people and their impact on others; and social activity to achieve positive change in society.* Orientation towards the future was associated with *welfare, help and compassion for others, finding and enjoying beauty, recognition and respect of people and the impact on others.* The dominant motives and values were the tendency for creativity and health. In the student group with a high level of innovativeness, the value-motivational characteristics were in their formative stage, but they had a clear structure.

The findings were further subjected to a gender analysis of students' innovativeness. Boys showed better results on the innovativeness index, whereas the creativity index in the girls' sample group was higher. Both sample groups were ready to take risks for success. The female students' sample group was more future-oriented than the male group.



The results of the correlation analysis demonstrated that the young men were willing to take risks and assist and show mercy to others. The boys were focused on overall activity and social utility in the future. The girls' dominant innovative manifestations were creativity, but they were focused on social activity and making a positive difference in society in the future. Generally, the study found that boys were more willing to take risks and that girls were more creative, but both sample groups wanted to achieve social benefits and positive change in society in the future.

Based on the factor analysis, the value-motivational structure of students' innovativeness was divided into 3 groups of factors: ***the factors of the value-motivational structure, the factors of value-motivational characteristics in the future and motivational factors of value-risk characteristics for success.***

The following gender differences were present in all 3 groups of factors:

- The value-motivational innovativeness structure of the boys had more detailed values and motives, which were equally represented as hedonistic and social components: *pleasant occupation, recognition and respect of the people and the impact on others and comfort, social status, communication, motivation and social utility.* In the girls, more pronounced motivational components of total activity dominated: *creative activity, social utility and work motivation;*
- The value-motivational characteristics of the girls' future demonstrated both hedonistic values (*pleasant occupation, recreation, comfort*) and social values and motives (*communication, commonsense motivation, social status*). The boys showed more pronounced social values and motives for the future, such as: *social activities to achieve positive changes in society, communication, total activity, creative activity, and social utility and work motivation;*
- Regarding the value-motivational risk characteristics for success, the boys were willing to take risks for the sake of wealth and high social status and to provide assistance and charity, and the girls were willing to take risks and be socially active to achieve positive changes in society.

In summary, the tendencies of the hedonistic and exploitative characteristics are seen in the value-motivational structure of students with a low level of innovativeness. Because of the demonstrated values of pleasant occupation and recreation, the focus on high social status and people management was explored. Consequently, there was a tendency to achieve status and people management without the desire for creative activity. These characteristics are alarming symptoms. It is evident that this group of students requires particular attention. The psychological services at a university and the faculty should do their best to develop the students' value-motivational activity. There is a risk that individuals with low innovativeness freeload on more developed personalities and exploit the potential of a more creative society.

The group of students with an average innovativeness level showed the most diverse palette of value orientations. They demonstrated both hedonistic and value-motivational aspects of social activity and creativity equally. This tendency is due to the age features of youth development, when some value orientations and motives

are actively replaced by others. Generally, the value-motivational sphere is unstable and prone to serious changes due to the influence of society. The socio-economic trends of society will substantially impact the structure of the value-motivational sphere and the development of personal innovativeness. These findings suggest that the sample group of students with an average level of innovation have an uncertain motivational structure. This finding confirms the need for assessing the psycho-pedagogical influence on youth motivational development.

In the group with a high level of innovativeness, as well as in the group with a low level of innovation, the values of high social status and people management were revealed. Unlike the first group, the values in the second groups varied and included new knowledge of the world, nature, and humans; recognition and respect of people and their impact on others; and social activity to achieve positive change in society. However, the motivational structure was expressed only by creative activity. The results of the study discovered the lack of a clear motivation for the particular activity in which one can apply it. There are serious concerns that the motives of creative activity can be transformed into other necessities in a particular activity that is not supported by motives of social significance. It is very important that the psychological services at a university and the faculty understand the value-motivational activity development of a person. Psychological support is required for the groups of students with various levels of innovativeness, as well as for students with a high level of innovation.

## Conclusion

In the search for socio-psychological and socio-economic development priorities in modern society, the perspectives of psychological research are aimed at identifying the value-motivational personality characteristics and the formation of youth creative activity. The values cultivated by society give rise to a new generation of individuals who are guided by the community's values. The value-motivational youth activity is the basis of society's progress and well-being.

The results of this study are of particular interest for practicing psychologists who can broaden the sphere of investigating the personal value-motivational structure and determining the basic methods of psychocorrective work in effective human capital asset development. Determining the value-motivational innovative activity and increasing personal developmental programs are the fundamental bases for innovative personality potential improvement and self-fulfillment in a professional career.

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## DEVELOPMENTAL PSYCHOLOGY

### **Semantic structures of world image as internal factors in the self-destructive behavior of today's teenagers**

Anatoly N. Alekhin\*, Natalya N. Koroleva, Eugeniya I. Ostasheva

*Herzen State Pedagogical University of Russia, St.Petersburg, Russia*

\*Corresponding author. E-mail: [termez59@mail.ru](mailto:termez59@mail.ru)

This article presents the results of a theoretical and methodological analysis and empirical study of semantic formations in the structure of a world image as factors in teenagers' self-destructive behavior in contemporary Russian society. During the teenage years the value-semantic bases of a world image are being formed. A world image is the integral, multilevel representation of the subject, which consists of social reality and himself/herself; it exists in the mind as a unity of sensual fabrications, significations, and personalized meanings. Transformations of semantic components of a world image that are inadequate for the environment or that are externally and internally rigid can serve as preconditions for disadaptation and for one of its extreme forms—self-destructive behavior. The purpose of our empirical research was to determine the main characteristics of basic conceptual formations in the structure of a world image—that is, attitudes, intentions, motives, and values—that serve as predictors of disadaptation in modern teenagers. The teenagers in the study were born in different generations with a ten-year interval (1990–1991 and 2000–2001). Our empirical research of the semantic world-image structures that serve as bases for the self-destructive behavior of modern teenagers consisted of two phases. The first phase provided a comparative analysis of the relationships, value preferences, and basic conceptual intentions that raise the possibility of disadaptation and self-destructive behavior among teenagers. In order to perform this analysis, we analyzed data from the Character-Pathological Diagnostic Poll (PDP) of A. E. Lichko. During the second phase, a comparative analysis was carried out of the basic semantic components of teenagers' images of the world and self-destructive and normative behavior. The main conceptual world-image structures were defined with the help of projective methods: the Thematic Apperception Test (TAT) and the modification for teenagers and youth (TAT-Y), which was developed by A. N. Alekhin and others. The main changes in the value-semantic orientations and personality dispositions of Russian teenagers in the late 20th to early 21st centuries were defined. The features of the semantic organization of these teenagers' world image as a precondition for disadaptive behavior were uncovered, and the personality preconditions for their self-destructive behavior were identi-

fied: their world image is fragmentary and self-contradictory; their personality features include cognitive distortions, a negative emotional state, ambivalence of motives and disposition, and disharmony with world-image semantic structures. The indicator for social disadaptation and behavioral deviation in modern Russian teenagers is evident deformation of personal relationships as the basic cognitive structure of their world image.

**Keywords:** teenager, contemporary society, sociocultural transformations, socialization, personality development, self-destructive behavior, disadaptation, value orientations, semantic formations, world image

## Introduction

Intense social and economic transformations in the modern world have a significant impact on personality development. The contemporary sociocultural environment, with its diffuse value cues, flexible normalization, and multiple boundaries for acceptable behavior, determines the unique conditions of socialization and the formation of world-image value-semantic bases and identity in adolescence. In fact, at the present time changes in value cues in the subjective reality of each individual, which have qualitatively different definitions in modern society, lead to systemic changes across the spectrum of personality from situational meanings to the highest existential levels of relationships to the phenomena of life and death. Philosophers and sociologists say that we witness how “another person” who feels, thinks, acts in a different way appears; such an “anthropological shift” (Khoruzhiy, 2002) concerns all aspects of individuality in both the somatic and the psychic spheres.

The social, political, economic, and cultural processes of the postindustrial era are inevitably modulating the dynamics and the qualitative features of mental development. The multimedia environment, new forms of games and communication, the completed sexual revolution, and the destruction of traditional discursive practices are realities of the modern world. Russia is not unique in this regard. In Russia these processes are unfolding so rapidly that science often cannot embrace the emerging phenomenon of a “new person” quickly enough. Since the mid-1990s, our country has experienced epochal sociocultural changes, the psychological aspects of which have hardly been analyzed and formulated, although there are philosophical, sociological, and cultural studies.

There is evidence of deep ontogenetic transformations. The fundamental difference between the mental organization of today’s Russian teenagers in comparison with that of their peers living in the middle of the past century in particular has been described. In his papers D. I. Feldshteyn has identified fundamental changes of the psychic reality of this age group. First and foremost are uneven intellectual development; structural changes in attention and memory processes; an increase in emotional discomfort, alienation, loneliness, self-doubt, and doubts about the future; increasing criticism of adults along with intensive processes of individualization and a search for the meaning of life; changes in value priorities; a growing lack of communication with peers; and retarded development of communicative and social competence and independent decision-making (Feldshteyn, 2010). In their research Prikhozhan and Tolstykh (2011) have revealed a decrease in reflexivity and emotional responsiveness in modern teenagers in comparison with their contemporaries in the middle of the 20th century.

A number of articles note distinct shifts in the value orientations of today's teenagers in comparison with those of their peers in the 1970s to 1990s. The value and life-purpose orientations of today's teenagers are being formed during the transition to a postindustrial information society. The influence of media culture, online communities, and the information environment as a whole on the processes of socialization in adolescence is increasing. Such traits of modern society as the interpenetration of cultures, the coexistence of multiple ideological systems, the diversity and intensity of information and communication flows, the virtualization of society and human consciousness result in the phenomenon of the value-semantic sphere of the personality—the mosaic character of teenagers' value systems. Values are not organized in a hierarchy, are not defined as “significant” or “insignificant.” The concepts of morality and of the meaning of life are diffuse. Fundamentally different goals, guidelines, and ideals can have the same value for teenagers without their perceiving an internal conflict. Different values are implemented for situational resolutions of various life problems; the use of diffuse and indistinct cues appears to be a way of adapting to the self-contradictory, unstable, uncertain, and rapidly changing social environment.

Summing up the results of sociological research allows us to characterize the main trends in the transformation of teenagers' value-semantic orientations in different periods of the recent history of Russian society: a transition from the well-organized hierarchic system through the crisis of values to a pliant, decentered, flexibly changing “network” of values and meanings; a decrease in the importance of social values and a diffuse understanding of spiritual and moral values along with increasing individualism and the prioritizing of privacy and consumption values; a transformation of the conflict between decretal and informal values to a plurality of values and unreflected value conflicts (Goncharov, 2012; Gorshkov & Sheregi, 2010; *Realnaya Rossiya*, 2006).

An individual as an integral whole is constantly interacting with reality and changing his/her ideas about himself/herself and the world in accordance with environmental changes (Alekhin & Vertyachikh, 2010). Adolescence is a crucial period for personality formation along with the expansion and mastery of the repertoire of social roles; in addition, a teenager's organism undergoes considerable biological transformation.

At the same time, personality development is integrating the main needs and motives of an individual into a single unit. During the teenage period, one's notion of the world and of oneself acquires different conceptual meanings, becomes more realistic and detailed, and includes a subjective life perspective as well as personal and social-directed plans. Teenage world images include the universal, group, and personal characteristics that are formed when teenagers interact with the real environment of the modern sociocultural situation (Burovikhina, 2013). The process during which a teenager is constructing his or her world image while interacting with the objective and social environment is strongly connected with personality development and with personal and social identity formation (Alexandrovskaya, 2014; Bozhovich, 1995/2001).

Today's teenager is forced to constantly “work on adapting” to changing situations in the “adult” world and to new social roles and positions while intense physiological transformations accompanying the transformation of self-image take



place at the same time (Sapogova, 2001). All these changes should be considered as a systemic transformation of integral behavior that is inevitably accompanied by stress and emotional tension. Mental adaptation to the dynamic conditions of the internal and external environment is a complex process, the efficiency of which can be judged only by teenagers' well-being. At the level of psychological analysis it can be shown by their relationship to themselves, to events, to others.

At the same time, in many cases teenagers in difficult life situations are deprived of assistance and support from adults. The decreasing influence of various social institutions—family, educational, and childrearing services, for example—plays a negative role in teenagers' personality formation as it poses a risk that they may develop inadequate behaviors, including those transmitted by advertisements and the media. In fact, the decreasing influence of these institutions leads to disadaptation and the manifestation of various forms of self-destructive behavior, such as suicide, chemical and information addiction, and alcoholism (Alekhin, 2012; Alekhin & Vertyachikh, 2010; Zmanovskaya, 2008).

The factors that are the bases of various forms of teenagers' deviant behavior have become the subject of multidisciplinary research by psychologists, physicians, sociologists, and lawyers. At the same time, the methodological principles of psychological research formulated in fundamentally different social and cultural conditions are inappropriate for analyzing the behavioral deviations, disadaptations, and personality development of teenagers in modern society.

The term *deviant behavior* is traditionally understood as a discrepancy between a person's actions and the norms and values established in the society; such behavior is seen as a violation of generally accepted social relations (Gilinskiy, 2004; Lichko, 1983; Zmanovskaya, 2008). The term is still used today, although it was introduced in a very different social context. Sociocultural personality formation has undergone significant and irreversible transformations since the introduction of the term.

Therefore, according to the methodological foundations of cultural-historical psychology (Vygotsky, 1983), the diverse behaviors manifested by teenagers' today should be considered as various ways that a forming personality adapts to multiculturalism, ideological uncertainty, the coexistence of fundamentally different value-semantic sets, and the increasing role of the multimedia environment and electronic media in different activities and in different methods of communication.

Thus, the diversity of teenagers' behavior today can be regarded as a way of adapting to rapidly changing social and cultural conditions. In this respect, self-destructive behavior is teenagers' attempt to cope with stress when constructive ways to overcome the difficulties of life are absent. They may perceive this behavior as an opportunity to display their uniqueness, to affirm themselves in a world of crises, or to avoid internal conflict or a traumatic situation, but in fact it leads to the deformation of mental formations generated during ontogenesis or, in the worst case, to death.

The most important factor in shaping abnormal, disadaptive behavior is lack of the experience necessary for coping with typical psychotraumatic situations or, in other words, lack of the development of mechanisms of self-regulation, which, in fact, is the essential task of adolescence. Different psychological concepts are used to denote this aspect. Nalchadzhyan (1988), for example, defines *self-conception*

and its substructure, including situational “self-images,” which are complex motives and behavior regulators, as leading psychological factors that influence the adaptability of a personality.

During the teenage period, the value-semantic bases of a world image are being formed—that is, the integral, multilevel representation system of the subject, consisting of social reality and himself/herself, which exists in the mind as a unity of sensual fabrications, significations, and personalized meanings.

The understanding of consciousness, or the world image as symbol-semantic formation, in the psychology of our country is developed in the tradition of the activity approach. According to A. N. Leontiev, consciousness, or the formation of a world image, is the way humans interpret reality: it allows them to orient themselves in the world, it is the base of their vital functions. Leontiev (1975) marks out three dynamic constituents of a world image: individual significations, sensual fabrications, and personal concept. Further development of the concept of a world image in accordance with the activity approach helped to reveal its role in activity regulation. Smirnov (1985, 1993) considers that a world image is a system of cognitive hypotheses that are integrated on different levels of consciousness and that influence the choice and implementation of actions and operations. Mechanisms for decoding semantic experience and imprinting it in a world image are strongly connected with the semantic regulation of consciousness and activity. Sense bends consciousness and personality. Concepts become senses only through their integration in a personal world image (D. A. Leontiev, 1999).

Myasishchev’s (1995) theory of personality’s psychological relations states that physiological and psychological sources of a premorbid state are a person’s difficulties or disorders in relationships with other people, in dealing with social reality, and in facing challenges. The system of attitudes toward the world, to other people, and to oneself, which determines values and moral principles, forms the abnormal or normative personality of a teenager (Bratus, 1988). Transformations of semantic components of a world image that are inadequate for the environment or that are externally or internally rigid can be precursors of disadaptation and one of its extreme forms—self-destructive behavior (Bogdanovskaya, 2012; Koroleva, 1998, 2005).

## **Method**

The purpose of our empirical research was to determine the main characteristics of basic conceptual formations in the structure of a world image—that is, attitudes, intentions, motives, and values—that serve as predictors of disadaptation in modern teenagers. The teenagers studied were born in different generations with a ten-year interval (1990–1991 and 2000–2001). The empirical research consisted of two phases. The first phase provided a comparative analysis of the relationships, value preferences, and basic conceptual intentions that raise the possibility of disadaptation and self-destructive behavior among teenagers. In order to perform this analysis we analyzed data from the Character-Pathological Diagnostic Poll (PDP) of A. E. Lichko; the questions consisted of sets of phrases describing 25 topics that reflect spheres of personal relationships important for teenagers, such as the way they feel; their moods; and their attitudes toward others, strangers, loneliness, new things.

Taking part in the research were a total of 182 Russian teenagers, all of them were living in Saint Petersburg and were studying in general schools. Of the 121 teenagers born in 1990–1991, 69 were girls, and 52 were boys. Of the 61 teenagers born in 2000–2001, 34 were girls, and 27 were boys. Participants were examined at the age of 12–13. The research took place in 2003 and 2013–2014.

During the second phase, the basic semantic components of an image of the world of another group of modern teenagers were correlated with self-destructive and normative behavior. The problem in this phase consisted in detecting characteristics of the relationships, conceptual intentions, needs, and motives in three main spheres of the teenage world image: parental family, opposite sex, other peers and adults. The main conceptual world-image structures were defined with the help of projective methods: the Thematic Apperception Test (TAT) and the modification for teenagers and youth (TAT-Y), which was developed by A. H. Alekhin and others in collaboration with members of the Clinical Psychology Department and Psychological Aid Department of the State Pedagogical University in the name of A. I. Herzen. A total of 85 Russian teenagers (43 boys and 42 girls) age 13–15 took part in this phase of the research. They were living in Saint Petersburg and studying at secondary institutions (schools and colleges). Among them, 40 had stable signs of disadaptation as well as of self-destructive behavior (alcohol and narcotic intake, risky sexual behavior, autoaggression), and 45 had socially normative behavior. The character of their behavior was determined with the help of their teachers' appraisals. For analysis of the statistical reliability of distinctions in frequency distributions in both series, the criterion Pearson's chi-square was used.

## Results

And now let's examine the results of the frequency analysis of the different PDP assertions and topics presented to the teenagers of different generations (Table 1). The reliability of the distinctions in frequency distributions was decided with the help of the criterion Pearson's chi-square.

Comparing results of the poll among teenagers of different generations, we can conclude that, as a whole, the goals of the modern teenagers (born 2000–2001) were more pessimistic and their attitudes toward different spheres of life were less positive than those of the teenagers born in 1990–1991. Optimism-pessimism as a conceptual intention first becomes apparent in characteristics of one's dominating emotional condition and the way one feels oneself.

In the sphere of interpersonal relationships and communication values, the teenagers born in the beginning of the 1990s had a positive attitude toward their parents and they appreciated confidential, close personal communication with their peers, although they treated strangers cautiously. Teenagers born in the beginning of the 2000s were notable for their negative attitude toward their parents and peers while they were more positive toward strangers.

The change in the evaluative-conceptual orientations of these teenagers was also reflected in their attitude toward the future. Thus, for the teenagers born in the beginning of the 1990s the future was not really meaningful; their attitude may be described as conflicted. Teenagers born in 2000–2001 tended to have a negative or indifferent attitude toward their future.

**Table 1.** Most frequent types of PDP assertions chosen by teenagers of different generations

PDP assertions	Percentage of answers						$\chi^2$	$\alpha$
	Born 1990–1991			Born 2000–2001				
	Yes, it suits me	No, it does not suit me	“Zero» reaction	Yes, it suits me	No, it does not suit me	“Zero» reaction		
I always feel myself alert and full of energy.	66.9	28	5.1	13.8	41.6	44.6	68.99	0.001
As a rule, I am in a good mood.	72.7	22.2	5.1	5.8	63.7	30.5	95.18	0.001
Before falling asleep, I like to dream about something.	77.7	16.5	5.8	13.9	41.7	44.4	85.03	0.001
I almost always am in a bad mood.	20.7	79.3	0	77.8	22.2	0	62.95	0.001
I almost always feel bad.	17.4	82.6	0	86.1	13.9	0	91.77	0.001
I love my mother very much, and I am frightened that something bad will happen to her.	30.6	64.4	5	5	52.8	42.2	48.87	0.001
I am really afraid of losing my parents.	71.7	22.3	6	30.5	63.7	5.8	36.54	0.001
I think that you have to respect your parents even if you offend against them in your heart.	71.9	28.1	0	13.9	86.1	0	66.31	0.001
I appreciate a friend who can listen to my problems, cheer me up, inspire me with confidence, set my mind at rest.	78.5	21.5	0	25	75	0	55.19	0.001
I am on my guard with strangers, and I am afraid of evil.	71.9	23	5.1	19.4	75.5	5.1	58.17	0.001
I want to be happy in the future, but I am afraid of problems and misfortunes.	68.3	31.7	0	25	75	0	35.94	0.001
I am trying to live my life in such a way that everything will be fine in future.	47.1	2.47	50.43	16.7	77.3	6	119.64	0.001

Within the examined groups the importance of different spheres of teenage life decreased. The total number of nonzero answers out of 329 positions was 107 among the teenagers born in 1990–1991 and 41 among the teenagers born in 2000–2001. Of the 25 topics presented, the modern teenagers considered the most im-

portant ones (based on the number of choices) to be “attitude to parents,” “attitude to friends,” and “appetite and food.” These teenagers paid almost no attention to other topics. This result indicates their priorities, their aspiration to satisfy their needs, such as the need for attention, and the necessity for them of communication with close people, both adults and peers.

Respondents born in 2000–2001 had ambiguous conceptual intentions, and their values were plastic and ambivalent; these results are connected with legal and ethical values, lifestyle, and type of interpersonal communication. They more often than the respondents born in 1990–1991 had both positive and negative reactions to such topics as “attitude to the future,” “attitude to critical remarks and objections,” “attitude to parental guardianship and reprimands,” “attitude to sexual problems,” “attitude to alcohol,” “attitude to rules and laws,” “attitude to people around,” and “attitude to strangers”.

In the second part of our research project, in the stories provided by the teenagers with disadaptation and self-destructive behavior we obtained the results, similar to the contents of the stories, created in response to the TAT method. Teenagers could not predict the behavior of another person and could not describe other people’s reactions and feelings. Their identifications with other people had an accidental, situational character: in some cases the teenagers identified themselves with a person of the opposite sex or with an object. Their stories were notable for their fragmentariness, absence of integrity, ambiguity, and negative affective tinge. They were filled with such themes as aggression, anxiety, tension, conflicts in relationships, ambiguity about the future.

**Table 2.** Most frequent characteristics of the relationship with the parental family in teenagers with self-destructive behavior and teenagers without behavioral deviations (test TAT-Y)

Topics	Teenagers with self-destructive behavior, %		Adapted teenagers, %		$\chi^2$	$\alpha$
	Existence	Absence	Existence	Absence		
Aggression, home violence	80	20	10	90	96.18	0.001
Distrust of the teenager	80	20	60	40	8.59	0.01
Distrust of the parents	75	25	30	70	38.81	0.001
Feeling of a lack of safety	75	25	10	90	83.80	0.001
Problem family	70	30	5	95	87.38	0.001
Prohibition on showing emotions in the family	70	30	15	85	59.66	0.001
Distant from parents	65	35	15	85	50.02	0.001
Shift of roles	55	45	20	80	24.66	0.001
Feeling of resentment	55	45	65	35	1.68	–
Lack of attention from parents	50	50	60	40	1.63	–
Need for autonomy	70	30	80	20	2.16	–
Hyperguardianship by parents	5	95	70	30	87.38	0.001

The results of content analysis within the TAT helped to reveal those personal relationships that formed an identification network for the teenagers in three main spheres: relationships in the family, relationships with the opposite sex, relationships with adults and peers. (In our report below we show how frequently the main categories of content analysis — the percentage of the descriptions of the images — occurred in the teenagers' stories.)

Negative attitudes toward their parental families can be traced in the teenagers with self-destructing behavior. The most significant problems for them were aggression, family violence, and their parents' distrust. These teenagers often felt vulnerable in their families and resentful of their parents (Table 2). Most of the disadapted teenagers believed they had a problem family and suffered from a prohibition on showing emotions in the family. In their families the roles of parents and children were reversed.

A feeling of resentment was also notable in most of the adapted teenagers; however, this feeling was for the most part connected with age-related personality developments, including the first manifestations of teenage emancipation, the desire to become free of their parents' guardianship, the desire to become independent, and, at the same time, the acute need for parental attention.

Teenagers with self-destructive behavior were characterized by semantic deformations in relations with the opposite sex. Their most significant motives for starting relationships with the opposite sex were the desire to leave their parents' house and their search for independence (Table 3).

**Table 3.** Most frequent characteristics of relationships with the opposite sex in teenagers with self-destructive behavior and teenagers without behavioral deviations (test TAT-Y)

Topics	Teenagers with self-destructive behavior, %		Adapted teenagers, %		$\chi^2$	$\alpha$
	Existence	Absence	Existence	Absence		
Desire to leave parents' house	85	15	10	90	109.79	0.001
Are searching for independence	75	25	15	85	70.32	0.001
Are aware of negative examples of intersexual relationships	70	30	25	75	38.81	0.001
Distrust opposite sex	60	40	30	70	16.99	0.001
Have short-term relationships	50	50	15	85	26.34	0.001
Approve of premarital sex	85	15	80	20	0.55	–
Desire to become adult	60	40	55	45	0.32	–
Desire self-fulfillment	5	95	70	30	87.38	0.001
Intend to maintain permanent contacts	10	90	70	30	72.52	0.001
Desire to create own families	10	90	75	25	83.80	0.001
Have feelings	10	90	80	20	96.18	0.001



At the same time, these teenagers distrusted the opposite sex as they were aware of negative examples of intersexual relationships. Half the teenagers with self-destructive behavior had short-term (accidental) relations with the opposite sex. The majority of respondents approved of premarital sex; this approval was evidently connected with the absence of prohibitions on such relationships in modern society. Most teenagers with socially normative behavior seemed to understand that relationships with the opposite sex are “attributes of maturity.” Simultaneously, socially adapted teenagers had grounds for establishing and maintaining such contacts; among these grounds were feelings, a desire for self-fulfillment, the intention to maintain permanent contacts, and the desire to create their own families.

The relationships with adults and peers of disadapted teenagers with signs of self-destructive behavior were also specific (Table 4).

**Table 4.** Most frequent characteristics of relationships with adults and peers in teenagers with self-destructive behavior and teenagers without behavioral deviations (test TAT-Y)

[Should the percentages in the first row of this table be reversed so that the 75 and 25 go with adapted teenagers and the 40 and 60 go with teenagers with self-destructive behavior? Or maybe the 25 and 75 should be reversed and the 40 and 60 should be reversed? Otherwise the description of the results in the paragraph below doesn't seem to make sense. If these numbers should not be reversed, please rewrite the paragraph below, especially the parts about communication.]

Topics	Teenagers with self-destructive behavior, %		Adapted teenagers, %		$\chi^2$	$\alpha$
	Existence	Absence	Existence	Absence		
Are satisfied with their communication with other people	75	25	40	60	23.65	0.001
Identify with informal groups of contemporaries	75	25	30	70	38.81	0.001
Imitate behavior of informal groups of contemporaries	65	35	35	65	16.82	0.001
Have negative attitude to the law	60	40	25	75	23.65	0.001
Authorities are older teenagers	60	40	10	90	52.77	0.001
Authorities are virtual images	25	75	10	90	6.78	0.01
Authorities are peers	10	90	35	65	16.51	0.001
Authorities are adults	5	95	40	60	33.14	0.001
Have high aspirations	5	95	55	45	57.16	0.001
Are ready to compromise	35	65	60	40	11.55	0.001
Are tolerant	30	70	70	30	30.42	0.001
Identify with people with the same hobbies and interests	15	85	70	30	59.66	0.001
Are ready to help	35	65	80	20	39.61	0.001
Are empathetic	45	55	85	15	33.42	0.001

The majority of the disadvantaged teenagers were satisfied with their communication with other people. At the same time, as prerequisites for forming and fixing patterns of self-destructive behavior, they aspired to identify with informal groups of contemporaries and to imitate their behavior. Another notable characteristic of the disadvantaged teenagers was their negative attitude to the law, an attitude that might be connected with their affiliation with groups of an antisocial character. Their authorities were older teenagers. One fourth of them had virtual images as their authorities. The teenagers without deviations in the sphere of adaptation generally felt empathy and were ready to help others; they were tolerant, ready to cooperate and compromise. Their identification with others was grounded in having the same interests and hobbies and in aspirations to be a success, to prove their self-sufficiency, to overcome inferiority feelings. The authorities for these teenagers were peers and adults.

In sum, the results show that prerequisites for self-destructive behavior were rejection of the parental family, a desire to establish short-term contacts with the opposite sex, a desire to join various informal groups of peers as compensation for their broken relationship with their parents and an absence of significant adults in their lives; they identified with contemporaries, older teenagers, and virtual images. In contrast, for the adapted teenagers, positive attitudes toward other people promoted identity formation and were a factor in their successful socialization.

## **Discussion**

The results of our empirical research allowed us to determine basic principles for changing the world image of Russian teenagers through social and economic transformations. Pessimistic ideas are growing, as well as negative emotions; the attitude toward strangers is positive, but the attitude toward others (mostly friends and relatives) is negative; the attitude toward the future is negative; personal meanings are conflicted and ambiguous; understanding of ethical, legal, and social values is ambivalent and blurred; many important life spheres have narrowed. Within the framework of intense modern social and cultural transformations, as well as the “evaluation gap” between generations, Russian teenagers suffer from a communication deficit; they do not communicate enough with adults and peers and do not get enough parental attention. Their image of the family in most cases is connected with a feeling of resentment toward their parents; their need for close personal communication with parents combines with their desire to become free from parents’ intense guardianship.

Teenagers with social disadvantages form a world image in the context of disharmonious relationships with families, the opposite sex, adults, and peers. Problems with family relations and experienced aggression and breach of trust make teenagers set up their own relationships with the opposite sex; because their image of such relationships is mostly negative, these relationships are short-term and unstable. Both real people—informal group members (peers), older teenagers—and virtual personalities can play a significant role for teenagers. Cognitive structures of the world are blurred for teenagers who identify with and imitate members of informal, peer groups and who subscribe to antisocial values.

## Conclusion

The modern teenage world image might be seen as a method of psychological adaptation to changing social conditions. Their ambiguous basic concepts and lack of a strict understanding of ethical norms and social principles allow them to adapt themselves to a multidimensional, dynamic, and unpredictable social and cultural environment. At the same time, they go through emotional discomfort, their negative attitude toward people is growing, and they have problems with planning their lives. The world image of modern teenagers has a “kaleidoscopic” character; it contains many heterogeneous, mostly controversial norms, rules, behavioral and communicative patterns. In turn, it forms grounds for the social and psychological disadaptation of teenagers; it triggers the formation and consolidation of different self-destructive behavior conditions. The indicator for the social disadaptation and behavioral deviation in modern Russian teenagers is the evident deformation of personal relationships as a basic cognitive structure of their world image.

The data we have collected show that it is necessary to develop adequate modern conditions for the prevention and correction of disadaptation as well as for the further socialization of modern Russian teenagers. Primarily, we need to form an optimistic life orientation; harmonious relations with families, parents, significant adults, and peers; a positive, realistic notion of the future; we need to develop critical thinking, reflexive activity, independence, the ability to understand oneself and other people, the ability to perceive social and moral principles consciously.

The bases of our research are, first, a systems analysis of social, cultural, and interpersonal factors influencing the formation of cognitive world-image structures during the teenage period and, second, the revelation of special features of basic, personal cognitive orientations in the structure of I-conception reasoning.

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## **The genesis of vandalism: From childhood to adolescence**

Irina V. Vorobyeva, Olga V. Kruzhkova\*, Marina S. Krivoschekova

*Ural State Pedagogical University, Ekaterinburg, Russia*

\*Corresponding author. E-mail: [galiat1@yandex.ru](mailto:galiat1@yandex.ru)

This study was developed because vandal behavior is an increasing threat in the world. Countries, commercial companies, and individuals experience great damage to property as a result of individual vandal acts. In addition, vandalism threatens not only “tangible assets” but also the cultural and historical heritage of modern humanity. Despite the threatening spread of vandalism, the study of its psychological foundations, including its origins, in the context of individual life courses is in many ways terra incognita. The objective of the present study was to investigate the genesis of vandal behavior and the sociopsychological and individual personality factors in the formation of readiness to destroy public property and the property of others. A comprehensive study of children, adolescents, and young adults ( $N=1522$ ), as well as of their social environment, revealed mechanisms of the readiness to commit vandal acts that were present since childhood. The study was conducted by examining four age groups: preschoolers (4–6 years), primary school pupils (7–9 years), adolescents (12–15 years), and young adults (17–22 years); the instruments used were specific-age batteries, observation, expert techniques, and questionnaires. We found that the characteristics of parent-child relationship are the basis for forming the boundaries of the permissible activity of the child; disturbance in the parent-child relationship can lead to the development of forms of vandalism in children. We describe the specificity and intensity of the vandal activity of adolescents and young adults in the context of their environment, and we look at the individual characteristics that promote deviant behavior. Thus, vandal activity is not only a specific characteristic of adolescents and young adults, and it is not always very destructive. Basic vandal activity originates in the early stages of ontogenesis as a result of a deformation in social interaction that becomes fixed and converted into the destructive actions of people trying through this form of activity to understand themselves in social space.

**Keywords:** vandalism, genesis of vandal behavior, preschool age, primary school age, adolescence, youth, personality and environmental factors in the development of vandal behavior



## Introduction

Human beings are the only creatures on the planet who consciously and deliberately alter the space around them. As a result of human activity the made environment is created. But the desire for change does not end with creating this environment; people continue to change it: they do not accept the fact that it is already given as a result of others' actions. By itself, the transformation of the environment can be both socially approved and socially disapproved — that is, of a vandal character. What is the reason for this particular type of activity, its deep motivation, its basic requirements?

On the one hand, this activity can be regarded as the result of an attempt to transform, create, innovate, or change, or to provide social or spiritual benefits to oneself or other people. On the other hand, the reason for this type of activity may lie deeper: a person may not transform the environment in a positive way but may break it down. We call graffiti on walls offensive, obscene, or simply informative or even decorative, but carving on fences, rocks, the bark of trees, benches is nothing more than the unauthorized destruction or modification of the property of others or public property (Vorobyeva & Kruzhkova, 2012). This is not just a problem with the self-expression or defects of upbringing of some individuals. Who of us didn't write on the desk at school? But why did we do it? Because of boredom, as a protest, or as the result of a special inner need that we did not express in other ways? It is possible to answer these questions by means of complex psychological research that considers vandalism not only when it occurs but also as a result of its genesis previously.

However, there are only a few studies of this question. A small number of publications concerning vandal behavior have focused on aspects of legal regulation and criteria for qualifying destructive actions as vandalism (for example, Harina, 2005; Pashutina, 2009; Shuruhnov, 2002) as well as on statistics and methods of combating the spread of vandalism in some countries or areas of life (for example, Ceccato & Haining, 2005; Pirozhkov, 1994; Shvets & Yakovlev, 2011; Thompson et al., 2012). The number of studies of the psychological bases of vandalism, its personal and environmental determinants, its forms and manifestations, its motives is quite small (for example, Allen & Greenberger, 1978; Coffield, 1991; Cohen, 1973; Goldstein, 1996; Skorokhodova, 1999); such studies are centered mainly on the evaluation of possible preventive actions (for example, Kalmikova, 2013; Patrusheva, 2010; Skorokhodova, 1999; Vatova, 2007). One feature of the modern study of vandalism in psychopedagogical practice is the relatively limited focus of interest of researchers on the adolescence and early adulthood of vandals (Gurova, 2014; Samokhina, 2007; Tserkovnikova, 2011; Vatova, 2000) without taking into account its genesis in childhood. At the same time, the consideration of the specifics of vandalism in different age periods will not only create a more accurate picture of the forms and embodiments of such activity but also help to identify predictors of the formation of a vandal model of behavior. This is a necessary basis for the effective prevention of destructive behavior because the already-established and implemented strategy of dealing with vandalism by directives and judgmental methods brings only a short-term effect, as vandals will always find a way to express their desire for the destruction of private or public property.

Elements of the destructive activity of a person appear in early childhood. But at this age destruction is a method of gaining knowledge of the laws and the characteristics of the material world, the subjective environment. Despite the result, which can be very close to vandalism, the child never considers this behavior as destructive and antisocial because, for young children, the limits of acceptable activity are yet to be determined and socially prescribed.

Later, during the preschool years, vandal actions can be a way of studying the material aspects of the environment, of understanding the mechanisms of the behavior of other people and their reactions to the destructive behavior, and of determining manipulative possibilities to control the behavior of others. A preschooler builds a prosocial behavior model by reflecting on the reactions of other people, both adults and peers, to destructive behavior. However, excessive destructive activity of a vandal character is seen here more as the result of a lack of education than as a personal choice of the child.

When a child goes to school, vandal actions are often random, when children, because of their lack of experience, cannot predict the outcome of their actions, which can be protective mechanisms for the release of tension and stress arising from educational or communication failure or excessive psychological pressure from the social environment.

Teenagers, whom many authors consider the main perpetrators of vandalism (Elliott, Huizinga, & Menard, 1989; LeBlanc & Freshette, 1988; Pirozhkov, 1994; Vatova, 2007; Vorobyeva & Kruzhkova, 2014), are quite often prone to destructive actions against a stranger or public property. Almost all teenagers engage in these small vandal acts in their communicative environment, without ascribing to them vandal values. Because the motivational bases of vandal activity are varied and numerous, the choice of this model can be determined by a combination of personal and environmental factors. However, the role of each of these predictors to date is quite undefined and empirically not proven.

Adolescence is characterized by already realized vandal models of behavior that are either integrated into an overall deviant personality or embedded in the value-ideological component of personality that is formed by conditions of the interactions in subcultural space.

## **Method**

The total sample of the study was 1,522 respondents (42% -boys, 58%-girls) in different age groups. These included preschoolers (65), primary school pupils (253), teens (448 middle school students), and young adults (466 students in institutions of secondary and higher education), also teachers and parents as experts in the assessment of children's behavior (5 expert educators, 10 expert class teachers, 65 parents of preschool children, 210 parents of children in primary school). All students in the study were not active vandals, but of the adolescents and young adults the majority noted that they had experience causing damage (major or minor) to public property or the property of others. The basic indicators reflect those of the normative sample in relation to the characteristics of the population. Because the participants were children from complete and incomplete (brought up only by the mother) families, significant differences in the manifestation of

willingness to vandal behavior between these categories of participants in the study were not revealed.

The research methods were a battery of diagnostic instruments, questionnaires, trace tests, and observation methods specific to each age group, as described in the following sections.

### ***Preschoolers***

1. Our protocol for observing the child's play. This protocol is aimed at determining the characteristics of the child's interaction with the world of things in the process of communication with peers. It assesses the manifestation of certain types of motivational readiness of the child to perform destructive actions in relation to two types of objects: their things (toys) and other people's things or social things (toys). Valuations are based on a 5-point Likert scale, in which the maximum score corresponds to a high level of preparedness for engaging in destructive actions with the objects of the material world.
2. The Parental Attitude Research Instrument (PARI) of E. S. Schaefer and R. Q. Bell (adapted in Russia by T. V. Neshcheret). This diagnostic examines parental attitudes toward various aspects of family life (including toward their interaction with the child). The questionnaire consists of 115 claims, in response to which the respondent has an option to choose scale points from 4 "full agreement" to 1 "complete disagreement." The results are described by 23 aspects of parents' attitudes to the child and family life, including 8 aspects of their attitude toward family roles (parochialism of women within the family — the mother is concerned solely with the family; the mother has a sense of self-sacrifice; presence of family conflicts; superauthority of the parents; mother's dissatisfaction with the role of housewife; "indifference" of the father and his noninclusion in the affairs of the family; dominance of the mother; dependence and lack of independence of the mother) and 15 aspects of the parent-child relationship (verbal manifestations, verbalization; partnerships; development of the activity of the child; egalitarian relationship between parents and child; irritability, irascibility; severity, excessive rigor; avoiding contact with the child; excessive care, establishing a relationship of dependence; overcoming resistance, suppression of the child's will; creation of a sense of security; fear of offending the child; suppression of aggression; suppression of sexuality; excessive intervention in the child's world; desire to accelerate the development of the child). These 15 aspects are distributed according to the three major trends in the parent-child relationship: optimal emotional contact, excessive emotional distance, and excessive focus on the child.
3. The Parental Attitude Questionnaire of A. Ya. Varga and V. V. Stolin. This diagnostic consists of 49 statements about parental attitudes. Respondents express their agreement or disagreement with them. The description of the results is in accordance with the following scale: adoption/rejection of the child (an emotionally positive attitude toward the child indicates adoption; an emotionally negative attitude toward the child indicates rejection); cooperation (adults desire to cooperate with the child, they manifest genuine interest and involvement in the child's affairs); symbiosis (unity with the child, contact between the child

and the adult); control (degree of democracy or authoritarianism in the adults' relationship with the child); attitude toward failure of the child (the adults' ability to assess the child's strengths and weaknesses, successes and failures).

4. The "Success" Program of I. A. Burlakova, E. E. Klopotova, and E. K. Yaglovskaya. This educational program is based on observation of the child and diagnostic tests. The technique diagnoses 9 integrative qualities of the child: curiosity; activity; emotional responsiveness; mastery of the means of communication and ways of interacting with adults and peers; ability to control behavior and to plan actions based on the primary value concepts; ability to observe basic common norms and rules of conduct; ability to solve intellectual and personal problems at an appropriate age; mastery of the universal prerequisites for educational activity; mastery of the necessary skills and abilities.

### ***Primary school age***

1. A questionnaire that we devised to allow parents to identify the features of the child's interaction with things in the child's communication space. This instrument consists of 22 questions, the answers to which are placed on a Likert scale. All questions are divided into three blocks: they characterize the tendency of the child to destroy object, the child's preference for things belonging to others, and the child's desire for novelty in relation to personal things.
2. The Parental Attitude Research Instrument, as described above.
3. Methods for evaluating the parental relationship.

### ***Adolescents***

1. The questionnaire Personal Psychological Sovereignty of S. K. Nartova-Bochaver. This personality questionnaire consists of 80 statements formed into 6 scales: sovereignty of the physical body, sovereignty of the territory of things, theories and beliefs, habits, social relations, and human values. Respondents are asked to respond on a dichotomous scale (yes/no).
2. The profile Biography of Subjectivity of O. I. Motkov. This diagnostic consists of five blocks that can be used to identify the level of subjectivity of people of different ages on a Likert scale according to the following criteria: independence; activity; initiative; creativity; ability to manage emotions, desires, and actions; desire for self-development and self-organization; awareness of one's own personality; rationality; harmony of personality; pursuit of middle or high achievement.
3. The questionnaire Motives for Vandal Behavior of I. V. Vorobyeva, O. V. Krzhkova, and S. A. Ostrikova. This instrument diagnoses 10 kinds of motives for vandal behavior: aggressive, tactical, caused by curiosity, mercenary, existential, aesthetic, as protest, caused by conformity, caused by inconvenience, environmental, caused by boredom. The questionnaire consists of 80 statements, each of which is evaluated by the respondents on a 4-point scale indicating their opinion of the admissibility or inadmissibility of such behavior. The questionnaire indicates a decrease or increase in the level of preparedness to commit vandal actions and highlights the main motive for destructive behavior.

### ***Young adults***

1. The Subjective Control Inventory of E. Bazhin, E. Golyunkina, and A. Etkind. This technique consists of 44 statements, to each of which the respondent expresses agreement or disagreement on a dichotomous scale (yes/no). The level of internality is diagnosed on the following scale: total internality, internality of achievements in the field of failures of the internal relations of production, internality in the field of interpersonal relationships, internality in health and disease, internality in family relations.
2. The questionnaire Personal Psychological Sovereignty, as described above.
3. The profile Biography of Subjectivity, as described above.
4. The questionnaire Motives for Vandal Behavior, as described above.

### ***Statistical analysis***

For the statistical analysis of the results of the research package we used IBM SPSS Statistics 19 and an additional module, AMOS. In order to solve research problems we used the following additional techniques:

- descriptive statistics to reflect general trends in the parameters of the respondents
- two-step cluster analysis to isolate from the total sample homogeneous groups with significant differences between them
- comparative analysis (the Mann-Whitney U test) to detect statistically significant differences between treatment subgroups in the main sample
- linear regression analysis to determine the personal and environmental predictors of readiness to engage in vandal behavior
- structural equation modeling to identify the overall structure of the relationship between and the interdependence of (1) environmental factors and individual personal characteristics of respondents and (2) indicators of readiness to engage in vandal behavior.

### **Results**

The compilation and interpretation of data through the use of complex mathematical and statistical procedures and methods of qualitative analysis of the results made it possible to describe the particular manifestations of human activity in the context of the commission of any vandal actions in relation to private or public property in each of the studied age periods.

### ***Preschoolers***

Observation of play and communicative activities allowed us to estimate the incidence and manifestations of actions of a vandal character of each observed child. The main indicators were the beginning of play with the child's own and others' toys; these observations demonstrated the children's relationship to their own property as well as to others' property and to public property. To highlight the be-

havior of different groups of children we carried out a two-step cluster analysis, which at a high confidence level divided the sample into two homogeneous subgroups. The first group comprised the 77% of the children who had adequately formed strategies of interaction with their own objects and the objects of others. The second group consisted of the 23% of the children who showed abnormal behavior in relation to their own, others', and common toys. Comparative analysis helped confirm the differences in the behavioral characteristics of the children in the selected groups. Thus, the following performance measures of the activity of children in the second group were statistically lower than those of children with adequate behaviors: reasonableness ( $U=248.0$ ;  $p=.036$ ), harmoniousness of personality ( $U=258.5$ ;  $p=.055$ ). In addition, for children in the second group the formation of integrative qualities was lower on the following parameters: mastery of the means of communication and ways of interacting with adults and peers ( $U=277.5$ ;  $p=.028$ ), the presence of primary representations of themselves and of their families ( $U=252.5$ ;  $p=.007$ ). Thus, the children who demonstrated vandal elements in their actions had difficulty communicating with peers and adults; were impulsive and often reacted inadequately in communicative situations (they were aggressive or, conversely, too timid); had a poor understanding of themselves and the motives for their actions; and may have had low levels of education for their age.

Through the use of regression analysis we obtained 4 models that describe the determination of the child's manifestations of vandal activity and the specificity of the boundaries of its distribution. Thus, the overall index of a child's vandal activity was dependent on the application or nonapplication by parents of the type of upbringing called "acceptance" (model parameters:  $F=4.8$ ;  $p=.032$ ;  $R^2=17.1\%$ ;  $\beta=0.267$ ). That is, when a parent likes a child just as the child is, the parent respects the child's individuality, tends to spend much time with the child, approves of the child's interests and plans, and contributes to the initiative and creativity of the child to the extent that the child sees fit. Furthermore, this index was also detected in specific features of parental attitudes toward the child and the actual parent-child relationship (model parameters:  $F=4.8$ ;  $p=.000$ ;  $R^2=40.6\%$ ), in particular, the mother's development of a limited interest in the family ( $\beta=0.404$ ;  $p=.002$ ), her dissatisfaction with the role of housewife ( $\beta=0.331$ ;  $p=.013$ ), dominance of the mother ( $\beta=0.258$ ;  $p=.051$ ), egalitarian relationship between parents and child ( $\beta=0.392$ ;  $p=.013$ ), inhibition of the suppression of the child's will ( $\beta=-0.368$ ;  $p=.023$ ), reduction in severity and excessive rigor ( $\beta=-0.358$ ;  $p=.007$ ), decrease in the "indifference" of the father and his noninclusion in the affairs of the family ( $\beta=-0.293$ ;  $p=.036$ ), restriction of excessive intervention in the child's world ( $\beta=-0.289$ ;  $p=.054$ ).

Interestingly, the child's destructive activity toward the child's own things (model parameters:  $F=4.8$ ;  $p=.000$ ;  $R^2=37.1\%$ ) and toward the objects of others (model parameters:  $F=4.9$ ;  $p=.000$ ;  $R^2=39.9\%$ ) were determined by a single list of predictors: suppression of the child's aggression ( $\beta=0.439$ ,  $p=.011$ ; and  $\beta=0.377$ ,  $p=.048$ , respectively), avoiding contact with the child ( $\beta=0.293$ ,  $p=.025$ ; and  $\beta=0.323$ ,  $p=.014$ , respectively), dependence and lack of independence of the mother ( $\beta=0.504$ ,  $p=.000$ ; and  $\beta=0.491$ ,  $p=.000$ , respectively), absence of the mother's sense of self-sacrifice ( $\beta=-0.324$ ,  $p=.000$ ; and  $\beta=-0.610$ ,  $p=.000$ , respectively), avoiding excessive strictness and severity ( $\beta=-0.244$ ,  $p=.047$ ; and

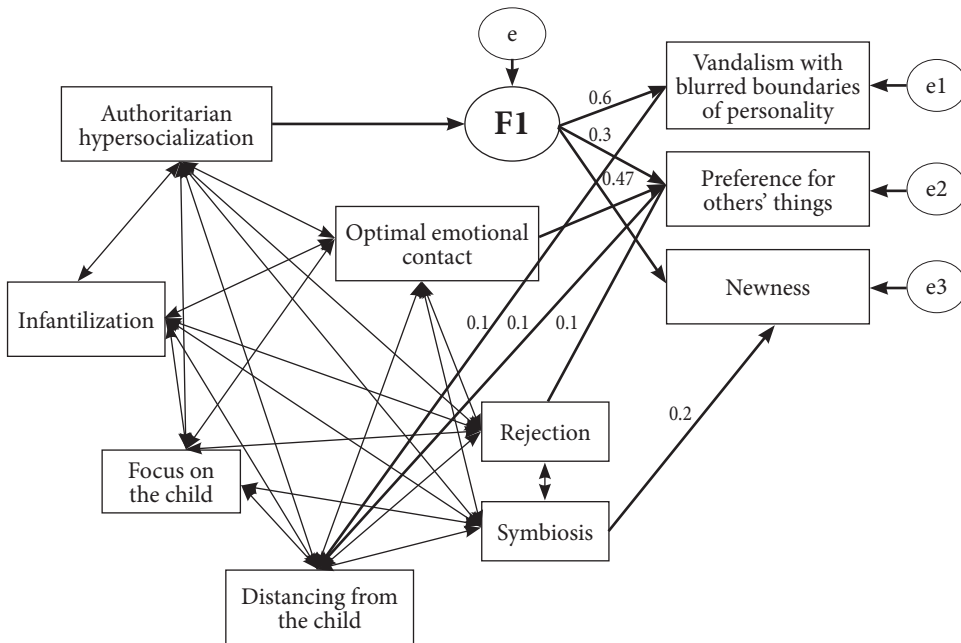


$\beta = -0.287, p = .020$ , respectively), unwillingness to create an egalitarian relationship between parents and child ( $\beta = -0.299, p = .041$  and  $\beta = -0.272, p = .059$ , respectively), and lack of desire to accelerate the child's development ( $\beta = -0.275, p = .024$ ; and  $\beta = -0.249, p = .040$ , respectively).

Thus, the preschoolers' choice of strategies for interacting with objects in the environment depended on different elements of the child-parent relationship.

### Primary school age

The questionnaires that were filled out by the parents of primary school pupils together with photos of each child's play space at home showed that the most characteristic feature of the study sample was the orientation of the pupils, in their attitudes toward the material objects in their environment, toward novelty ( $M = 2.5$ ). Thus, the students could easily part with old things, did not worry about their loss or damage, and tended to like new objects. The borders of their activity in this regard were characterized by mobility; new objects were easily adopted, but there was no clear identification of their own things and those of others; this situation can provoke unauthorized use of objects and lead to the appearance of vandal activity. In this case, the integral measure of the tendency of the pupils to commit van-



**Figure 1.** Measurement model of the connections between features of the parent-child relationship and indicators of the child's relationship to objects in the material world (Vorobyeva & Kruzhkova, 2014b). Statistics models: CMIN = 14.545;  $p = .485$ ; CMIN/df = 0.970; AGFI = 0.951; GFI = 0.987; CFI = 1.000; RMSEA = 0.000. F1 — indicators of the child's relationship to objects in the material world. Thick arrows indicate regression of communication in the child-parent relationship and regression in the child's relationship to objects in the material world; double-edged arrows indicate correlations with relationship styles in the family; figures are the regression weights of the correlations indicated by the arrows.

dal activities was also the average degree ( $M=2.0$ ), which indicates a sufficiently developed strategy of interaction with the subject-object world: the child weren't restricted to the random commission of any offense but repeated it over and over again. This finding confirms the analysis and the representation of children's vandal behavior in the primary school environment: observation of students in the educational environment and expert assessment from teachers showed that about 27% of respondents committed acts of a destructive or transformative nature at least once. Of these, about 10% showed vandal behavior systematically.

Studies of the role of the family in the formation of the child's interactions with objects in the surrounding space, including vandal actions, were carried out by structural modeling. As a result of the application of mathematical and statistical methods, a model was obtained that contains parameters that characterize the system of parent-child relations and indicators that reveal the child's relationship to the world of things (Figure 1).

Thus, the most connected of all diagnosed features of the interaction of the child of primary school age with objects in the surrounding area were a preference for others' things, a tendency to systematically update the child's own objects and to depreciate "old" objects, and a tendency to destroy or otherwise vandalize objects.

### ***Adolescents***

A two-step cluster analysis ( $p < .010$ ) was used to clarify the extent of vandal behavior in this age group; the analysis detected the presence in our sample of three subgroups. The first cluster (64% of the respondents) included teenagers whose median propensity for vandalism was at the normative (low) level with a single upper limit of normal for individual respondents on various scales exceeding regulatory limits by 1–2 points. In the second cluster were the 23% of respondents whose median propensity for vandalism was within the normative range but with a single upper limit of normal for individual respondents exceeding regulatory limits by 5–10 points. The third cluster included the 13% of respondents whose median propensity for vandalism clearly exceeded the statutory limit; the propensity of many of these respondents exceeded the upper limit of normal by 15 points or more. These subgroups were subsequently compared with each other with respect to the strength of their characteristics of vandal activity (on the Mann-Whitney test).

The statistics showed that the teenagers in the first and second groups with standard indicators of propensity for vandalism did not differ significantly from each other. However, there were substantial differences in the adolescents in the second and third groups on the following variables: a harmonious personality ( $U=34.5$ ;  $p=.025$ ); resistance in difficult situations ( $U=33.0$ ;  $p=.022$ ), sense of identity ( $U=39.5$ ;  $p=.051$ ). In the group with a high propensity for vandalism the rate of vandal activity was significantly higher than that for the normative sample. This finding can be explained by the fact that for teenagers the mechanism for development is self-assessment and awareness of the outward result of specific actions. Thus, damaging others' property or public property can contribute to an increased understanding of themselves and their capabilities; it provides training for appropriate behavior in difficult situations and a generally positive assessment of themselves through overcoming social norms and prohibitions.

As a result of our analysis and synthesis of existing approaches, we can suggest that the sovereignty of psychological space and the orientation of teenagers on certain personality characteristics can act as preconditions for the formation of readiness to commit acts of vandal behavior. For the mathematical and statistical treatment of data we used multivariate regression analysis; the general parameters of the resulting model were:  $F = 12.4$ ;  $p = .000$ ;  $R^2 = 10.3\%$ . As a dependent variable we chose the overall motivational readiness of teenagers to commit vandal actions; such actions cause changes in the sovereignty of the physical body ( $\beta = 0.202$ ;  $p = .005$ ) and the sovereignty of the world of things ( $\beta = -0.108$ ;  $p = .012$ ).

Thus, it can be assumed that the expression of teenagers' motivational readiness to commit vandal acts is initiated because of the aborted sovereignty of psychological space and thus is a violation of ideas about the acceptable limits of this activity. Teenagers who have some problems understanding their own bodies and physiological needs and are overall dissatisfied with themselves are likely to choose a behavior that involves causing harm to other people's property. Perhaps a compensatory mechanism is triggered that arises from internal discontent with themselves and their existence in the subject-object environment. In addition, deprivation of sovereignty of the world of things also provokes vandal activity. Problems with the definition of the boundaries of others' property lead to unauthorized use. This feature may form in teenagers because of a lack of personal belongings in the sensitive period for the ontogenesis of this behavior. And if the first cause for readiness to engage in vandal behavior and even for some awareness in choosing such behavior is a teenager's compensatory reactions and defensive positions, the second cause is closely related to a violation in the ontogeny of adequate ideas about the world and a person's place in it.

### **Young adults**

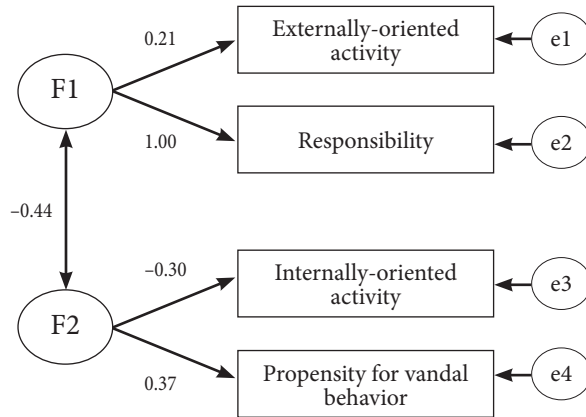
The young-adult sample was also subjected to a two-step procedure of cluster analysis on the diagnostic data questionnaire Motives for Vandal Behavior ( $p < .050$ ). As a result, three clusters were identified. The first cluster included the 56% of respondents whose median propensity for vandalism was at the normative (low) level with a single upper limit of normal for individual respondents on various scales exceeding regulatory limits by 1–2 points. In the second cluster were the 35% of respondents whose median propensity for vandalism was at the upper end of the normative range with many individual respondents exceeding the regulatory limits by over 9–10 points. In the third cluster were the 9% of respondents whose median propensity for vandalism clearly exceeded the statutory limit; the propensity of many of these respondents exceeded the upper limit of normal by 15 points or more.

To identify features of the representation parameters of the subjectivity of the respondents with regard to their propensity for vandalism, we conducted a comparative analysis of selected clusters using the Kruskal-Wallis test with a refining pairwise comparison to the Mann-Whitney test. Nonparametric criteria were used in connection with the disequilibrium number of comparison groups, and therefore there are substantial differences in dispersions. In general, the respondents in the third cluster, with a high propensity for vandal acts, had most of the char-

acteristics of vandal activity at significantly lower levels than did respondents in the other groups. Thus, a smaller number were aware of their own personalities ( $H=6.1$ ;  $p=.048$ ), had nontypical internal accounting requirements and external conditions in the construction of behavior ( $H=10.2$ ;  $p=.006$ ), experienced dissonance in the relationship of themselves and the world around ( $H=6.6$ ;  $p=.037$ ), and lacked focus on the achievement of high results ( $H=5.8$ ;  $p=.057$ ). In addition, pairwise comparisons of those in the third cluster and those in the second cluster, whose propensity to commit vandal acts was expressed to a middle degree, revealed a significant difference in the parameter diversity and interest in life ( $U=2040.5$ ;  $p=.032$ ), which was less characteristic for the third group.

To clarify the nature of the relationship characteristics of vandal activity and motivational readiness to engage in vandal behavior in the group with a high propensity for vandalism, we conducted a correlation analysis (Spearman's rank coefficient). We found that mercenary motives for vandalism, which involve the commission of such acts for personal gain, were linked to the desire for outstanding achievements in various fields ( $r=0.457$ ;  $p=.025$ ). It can be assumed that a business model is adopted by some people as a valid option because of their high need for approval, ambitious goals, or tendency to perfectionism. In this case, the person is ready to use any means to achieve the desired outcome. Protester vandalism, caused by the desire to register one's disagreement with something, was negatively correlated with initiative ( $r=-0.569$ ;  $p=.004$ ), ability to manage emotions, desires, and actions ( $r=-0.471$ ;  $p=.020$ ), positive emotional tone ( $r=-0.526$ ;  $p=.008$ ), and willpower ( $r=-0.412$ ;  $p=.046$ ). Or perhaps the choice of an antisocial activity model that was detrimental to the property of others or to public property resulted from having a nihilistic outlook as well as from failing to regulate and control one's own behavior. Vandalism caused by boredom, the desire to occupy oneself with something, had a direct correlation relationship with initiative ( $r=-0.440$ ;  $p=.032$ ). A high need to realize oneself can give rise to a misunderstanding of a situation, and the result is destructive vandal actions committed for temporary distraction and entertainment.

The analysis of the young adults' motivational readiness to commit vandal acts revealed ten possible motives. One of the most prevalent was the motive of curiosity; This motive was present in about about 21% of the respondents; they had a pronounced tendency to choose vandalism as a way of studying the world and themselves. In our analysis of curiosity as a motive in our group of respondents we formed a regression model that explains it through various properties of the respondents' subjectivity (model parameters:  $F=8.0$ ;  $p=.001$ ;  $R^2=80\%$ ). These data describe the "curiosity vandals" as being emotionally positive, active, and sociable ( $\beta=0.705$ ;  $p=.013$ ), capable of self-control ( $\beta=0.984$ ;  $p=.002$ ), but not fully accepting of themselves as a whole person ( $\beta=-0.667$ ;  $p=.010$ ) and not agreeing with the terms and circumstances of their life ( $\beta=-0.525$ ;  $p=.005$ ). In addition, they are not capable of volitional effort in everyday life ( $\beta=-1.000$ ;  $p=.001$ ), they lack initiative ( $\beta=-0.842$ ;  $p=.004$ ), and the most complete realization of their personal potential occurs in stressful emergency situations ( $\beta=0.894$ ;  $p=.002$ ). This characteristic leads them to take risks in potentially contentious interactions with the environment. They choose vandal actions as a convenient way to get information about themselves from the outside world.



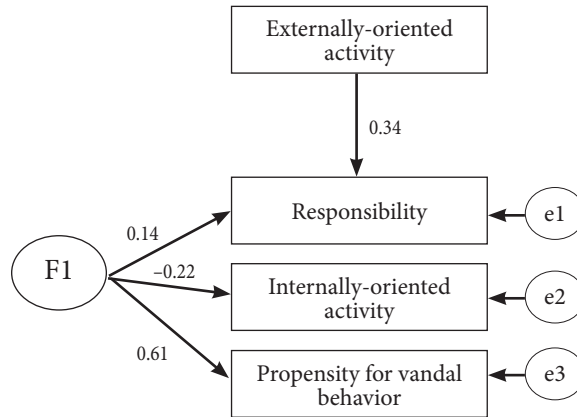
**Figure 2.** Measurement model of the relationships between propensity for vandal behavior and the orientation of the respondents with normative behavior on certain personality characteristics . Statistics models: CMIN=0.152,  $p=.927$ ; CMIN / df=0.076; AGFI=0.996; GFI=0.999; RMSEA=0.000; F1 — indicators of vandalism in the external world, F2 — indicators of vandal activity in the person. Thick arrows indicate regression in communication parameters; figures are the regression weights of the correlations indicated by the arrows.

The results showed a complex subject-personal determination of vandal behavior in the young adults and suggest that they not only can destroy and harm the subject-material environment by such actions but can use such behavior as a tool, a means of implementing cognitive activity aimed at themselves, in order to better understand their own “I”, including in the system of social relationships.

The determination mechanisms of vandal behavior in the young adults were identified by using structural models. A statistical procedure included two contrast groups of these respondents: those with a strong propensity to commit vandal actions and those who lack such a propensity. The resulting models allow us to describe the direction activity (to the outside world or to oneself) in the context of readiness to harm someone else’s property or public property and taking responsibility for this activity. Thus, in the group of respondents with normative behavior, activity had both vector directions: to the outside world and to the subject, and the respondents expressed willingness to take responsibility for their actions and results. Accepting responsibility in this way leads to activation of work on self-development and self-improvement (Figure 2). Vandal actions then become unnecessary because the transformation is internal and subject-oriented.

The group of young adults with a strong willingness to commit vandal behavior did not have an internal implementation of vector activity, preferring an externally oriented (environmental) expression of themselves. At the same time they are ready to take responsibility for their actions, and the vandal activity was demonstrative and of an oppositional character. The results of such actions are not analyzed, are not internalized, and do not lead to internal changes (Figure 3).

Thus, young adulthood was found to be a period of increased tendencies to commit vandal actions. In addition to the internal / subjective or personal factor, the young adults were susceptible to social pressure in the environment and tended



**Figure 3.** Measurement model of the relationship between deviant behavior and the respondents’ propensity for vandal behavior and orientation on certain personality characteristics (Vorobyeva & Krivoshekova, 2014). Statistics models: CMIN=0.131;  $p = .936$ ; CMIN/ df=0.066; AGFI= .983; GFI=0.997; RMSEA =0.000. F1 — indicators of specific activity. Thick arrows indicate regression in communication parameters; figures are the regression weights of the correlations indicated by the arrows.

to choose vandalism as a means of identifying themselves with their generation in opposition to the adult world. A more detailed study (Vorobyeva & Krivoshekova, 2014) of the psychological readiness of young men to damage someone else’s property or public property has shown that the key phenomenon that triggers the mechanism of choosing vandal behavior is a disordered orientation toward activity. Having the ability to work on this problem and change oneself can minimize the risk of vandalism in young adulthood.

**Discussion**

According to the study, the preschool children who in their actions demonstrated elements of vandal behavior had difficulty communicating with peers and adults, were impulsive, often reacted inappropriately in communicative situations (were aggressive or, conversely, were too shy), poorly understood themselves and the motives for their actions, and may have had a low level of education for their age.

Some importance is attached to building a culture of interaction with the objective world through the parent-child relationship. Thus, a mother’s concentration of her efforts on family matters and renunciation of limiting her own interests and activities solely to economic concerns allow due consideration of the mother for the child and the child’s education, transfer of knowledge, and formation of the social, activity, intellectual, and value spheres of the child’s personality. At the same time, involving the father in this process, setting limits on the “power” of the parents to restrict the child’s possibilities, setting clear rules of authority, as well as providing a positive emotional background allow the child to acquire the optimum level of independence and do not suppress the child’s practical activity but form an understanding of the limits of its manifestation.



The preconditions for the vandal behavior of preschoolers are excessive distancing from them, suppressing their will and practical activity, and not making reasonable demands of them or constructive contact with them. These preconditions can be the result of lack of interest, indifference toward the child, or parents' lack of self-confidence in their role as educators.

Adequate behavioral expectations are formed in families with a high level of acceptance, optimal emotional contact, and optimal dependence on the family; these families also provide adequate but nonexcessive care for their child. The choice of passive strategies can lead parents to refuse to have contact with the child, to have a fear of offending the child, and to exhibit a strong sense of self-sacrifice. When a child commits acts of elements of vandalism, that behavior contributes to a high level of parental evasion of contact with the child, a significant suppression of the child's will and attempts to overcome the child's resistance, and the presence of maternal feelings of dependency and lack of independence. At the same time securing pro-social models promotes rigor, the desire to accelerate the development of the child, and an egalitarian relationship between the parents and the child.

Pupils' orientation toward things that do not belong to them cannot be considered exclusively as a negative aspect of their personality. For example, young children may choose others' toys (in the presence of their own), but in this case curiosity and the novelty effect satisfy them if parents use pro-social behavior strategies, such as making requests, cooperating, sharing. However, there are opposite options—deception, taking possession of another's things, causing damage—that are more closely associated with the kinds of negative behavioral patterns that a child can demonstrate in relation to objects in the environment. Our analysis showed that the causes of these patterns are specific features of the parent-child relationship, such as a lack of emotional contact between the parent and the child, the distancing of the parent from the child, and parental rejection of the child. Accordingly, we can assume that on the one hand the actions of the child may be dictated by the objective need, significant for his age group, for things the parents do not buy for a variety of reasons. On the other hand, numerous studies show that when these types of parental behavior occur, the child has for the most part already been provided with everything necessary but feels the need not for material objects but for the attention and participation of the parents. In this connection, the preference for others' things and taking them without the permission of the owner can be a kind of compensatory response to a rift in the family and, in some cases, can be a way to attract attention. It is as if the child at an early age replaces a system of social relations—especially the one that was supposed to be a priori emotionally comfortable and safe, more predictable, and already well established action system—with material objects in the previous age periods.

The child's desire to systematically update the objective world on the one hand manifests itself in regular requests for new things and on the other hand accompanies the inadequate treatment of already-owned objects. Thus, the child loses, breaks, gives away, or just does not use the thing requested and at the same time articulates new requests. Such a strategy expresses the symbiotic position of the parent and the child, which manifests itself in the parent's effort to meet all the needs of the child in order to protect the child from troubles and difficulties. The more parents are focused on creating comfort for the child to meet the world through a

wide variety of needs for a diversity of things, the less meaningful these things are for the child. As a result, the child may have no realistic idea of the value of the objects and the possibilities for their acquisition.

Preschoolers' tendency to destruction and damage of items often appear as unconscious vandal acts. In this case, the children are well aware of the process by which these acts occur and most likely can predict the result but do not realize that such behavior is proscribed because the objects are not their personal property. Often, such objects are identified by pupils as "unnecessary," and they do not accord them any importance for society, a group, or an individual. Such a view occurs when the parents maintain a maximum distance from their children. Probably the lack of systematic interaction between parents and children, which not only forms values and beliefs about the world but also generates awareness of the child's place in it, leads children to misunderstand the borders of their actions. As a result, forms of interaction with the outside world, including the world of things, are formed spontaneously in a child under the influence of situational factors that can lead to feelings of mistrust and inferiority. The vandal actions of these children are performed systematically and unreflectingly. The children are not aware of the social unacceptability of their actions, and the motivational basis of this behavior depends on the experience of interacting with the world that they received in the course of their development.

Thus, vandal behavior is most characteristic of adolescence and young adulthood but has a long genesis and forms from the early stages of ontogeny. Younger children who damage someone else's property or public property are not always aware of the negative social meaning of their actions, but in this period the stable installation of the intentional infliction of harm to material objects can take place. Personality development is due largely to the social factor, the system of parent-child relationships remains a key element of it in the period of primary school age. It is precisely in these conditions that children's pictures of the world are determined by the value-semantic aspect of material objects and socially acceptable ways of interacting with them as well as by the formation of mechanisms for reflecting the social characteristics of children through their own things and attitudes toward them. Destructive parent-child relationships negatively affect the development of children and form their misconceptions about themselves and their place in the system of social relations and in their relations with the objects of the material world. Thus, excessive distance from or even rejection of the child initiates certain behavioral patterns of destructive actions of a compensatory-demonstrative nature in relation to other people's things. Conversely, an excessively symbiotic relationship with a child devalues the physical environment, both the child's own things and objects belonging to the society or other people.

## **Conclusion**

Based on the results of the study the mechanism for the formation of vandal activity can be suggested it has the following roots in the genesis of age development.. Because of the child's special relationship with significant adults, the nature of the child's interaction with the subject environment is determined largely by the parent-child relationship (Lisina, 1997; Rozhdestvenskaya, 2002). When a child of

preschool age commits vandal actions toward others' property or public property, the child is guided mainly by an emotional outburst or negative feelings (jealousy, desire to avenge), and the regulation of the conduct does not involve the deep reflexes. Excessive control, lack of requirements, and subject-object variants of parents' and caregivers' relationships with preschoolers lead to deformation of ideas about acceptable limits of the implementation of activity, which in turn contributes to children's choosing vandal behavior as a strategy for meeting urgent needs. In the early school years vandal activity is latent. Changing the social situation of development leads to children's experiencing the effect of novelty. They are dominated by social motives for educational activity and an acute sense of responsibility for behavior; they are important in the eyes of their reference groups of adults and peers (Davydov, 1990). This situation creates conditions for control and self-control and makes it almost impossible for the emergence of actual forms of vandalism. However, in this period the internal readiness of the child to consciously choose vandal behavior in the future as a way to solve personal problems forms. Because of the conservation role of parents in shaping the boundaries of the permissible activity of the child, the presence of disharmonious parenting styles in a family creates the preconditions for the emergence of psychological readiness to consciously choose vandal actions.

Vandal actions are most evident among teens (Vatova, 2000); at this period in the normal development of the personality there are two options for the initiation of such a deviation. In the first case, vandalism is a result of experimentation with the social, objective environment or the person's own capabilities and is characterized by situational poverty; such behavior gradually loses its relevance for the maturing personality. In the second case, vandalism is a manifestation of conformity: vandal acts are a way to maintain social acceptance and identification of a teenager in a reference group. Here vandalism is not an aim itself; for a teenager it acts as an element or type of joint activity that creates a sense of belonging to the community. Teenagers who have not formed at earlier stages of development the necessary social and reflexive skills because of external conditions compensate for their powerlessness and incompetence in the social sphere by making a destructive impact on the objective environment for the purpose of self-knowledge his experiences, opportunities and the other's relationships with him and his activities.. Thus, vandal activity allows teenagers to indirectly perform the basic tasks of their age in order to form a self-image, but it simultaneously reinforces a deviant pattern of behavior.

In the next age period—young adulthood—this model is fixed and compounded; young adults continue to know themselves and their capabilities through the transformation of the environment, including the unauthorized destruction of its facilities. The energy that goes into normative development in the formation of self-knowledge and is based on the trajectory of future life here is replaced by externally-oriented activity, including activity of a destructive nature. In addition, those young adults who previously chose vandalism because of group pressure reinforce this behavior through their inclusion in youth subcultures, many of which directly or indirectly commit vandal actions for ideological reasons.

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## BOOK REVIEWS

### **Review of the book by Aleksander I. Dontsov “Phenomenon of Envy”**

Natalia V. Grishina

*Saint-Petersburg State University, Saint-Petersburg, Russia*

Corresponding author. E-mail: [grinat07@gmail.com](mailto:grinat07@gmail.com)

Considering today's abundance of psychology books, from reprints of timeless classic works through scholarly editions to popular literature, it is hard to expect a new book to become a big event in psychology. However, a book entitled *The Phenomenon of Envy* is hard to overlook: as observed by the author, very few people are unaffected by envy. Besides, the name of the author, Aleksander I. Dontsov, former head of the Faculty of Psychology at Moscow State University and of the Russian Psychological Society, is well known among Russian scholars.

From the start of the book, the author addresses the readers directly, drawing them into a dialogue, creating the feeling of a conversation in which the interlocutor's intonations are easy to perceive. But the seeming simplicity of the narrative is just an illusion: reading the book requires inner concentration and intellectual work in order to meet the standards set by this dialogue.

Dontsov defines his book as “a consistent attempt to implement the new standard under the old title: cultural and historical methodology” (p. 8). If we accept the author's definition, then the new standard involves a conclusive description of symbols, common superstitions, ancient prototypes and archetypes, images, and scientific facts related to the phenomenon of envy, beginning with a thorough analysis of the origins of the word *envy*, its meanings and usage. This list, as well as the table of contents that it is based on, does not reflect the complex structure of the text, with its references to ancient texts, philosophical and theological treatises, works of modern scholars, scientific facts, history, culturology, social studies, and psychology.



The text is incredibly diverse: it spans many fields and moves from the world of ancient philosophers to the works of modern psychologists, while always retaining the encyclopedic accuracy and thoroughness of the narrative. It is so rich that every chapter could be made into a book on its own (just consider some of the chapter titles: “Superstitions: Hex”; “Archetypal Characters: Zeus, Devil, Cain”; “Images: Iconography”!). Amazingly, the text, in all its richness, gives room to breathe and full scope to the imagination.

The readers’ imagination and creativity will be put to work. Dontsov seems to know everything about envy, and he generously shares his own ideas as well as ideas derived from other people’s works. Nevertheless, it is hard to escape the feeling that we are dealing with an elusive phenomenon. Each and every one of us knows what envy is; we all have experienced this feeling. Still, exactly what is it? It is not a product of modernity, which the author proves by referring to ancient texts, classical culture, and history. It is widely reflected in everyday language and in numerous proverbs and superstitions in various cultures. It has its own symbols and archetypes. Envy was portrayed in ancient engravings, and today it is studied by modern scholars.

Like an orchestra conductor who brings all the instruments together in harmony, in the last chapter of the book (I am certain that all readers will not deny themselves the pleasure of reading the whole text, and those who do will want to go back to the beginning after looking through the last chapter), Dontsov combines the topics covered in the previous chapters into a clearly and logically formulated analytical program of describing envy through finding answers to a number of questions: What is envy (what is its original distinguishing feature)? Who is susceptible to envy? Who and what are usually envied? How is envy born? Why does envy emerge? And, finally, “why does envy remain a constant in human relations” (pp. 435–437)? Synthesizing the results of an analysis of how the phenomenon of envy is viewed in various cultures and eras (which takes up over 400 pages) with recent research results leads to rather unexpected conclusions, as well as to new questions.

It is common knowledge that envy is an unpleasant, painful feeling aroused by “the realization that another person (or group) possesses something (an object, social status, qualities or traits, etc.) that the envier lacks and desires” (p. 445). This definition is, however, just the beginning. Envy is, above all, a painful reaction to the success of our fellows. Dontsov quotes remarkable facts. For example, modern neurophysiological research shows that the activation of brain structure that occurs when one comes into contact with someone whose achievements are higher than one’s own proves that the arising negative feelings are a reaction to the other person’s success rather than to one’s own failure (p. 452). In other words, other people’s success is often harder for us to handle than our own failures (for which we can always find excuses).

Another important fact that Dontsov draws our attention to is that success must be distinguished from luck. They may lead to the same result, acquiring certain advantages, but we envy the success of others, not their luck (which, of course, can be envied as well, but not too deeply or for long). Therefore, it is not the result (certain advantages) that is important, there must be something else. Luck is often a coincidence, while success is usually the result of one’s efforts; it must be earned.

Studies in positive psychology prove that positive emotions and pleasure are felt much more strongly and longer if they result from our achievements, from our own efforts: they too must be "earned."

It turns out that the deep meaning of envy is not that someone has something that one does not have: it is that someone is able to accomplish something that one has failed to accomplish. Another person's success becomes a challenge; it evokes painful self-doubts that we try hard to suppress. That is why envy is directed at the person, not at something he/she possesses. That is why we envy our fellows, people just like us, who, being in a similar situation, did something that we could not do. (We wouldn't envy the Queen of England, would we?) Dontsov emphasizes that success means social approval, public recognition and admiration; in other words, it distinguishes one person from others (p. 454–455). Could this specialness of others (why are they better?!) be the cause of envy? After all, people envy things that are unique, not things that can be possessed by everyone. (Similarly, in conflicts, rivalry usually centers around something that is limited or scarce. Things that are accessible and abundant do not cause rivalry). People envy others' wealth, social status, professional achievements, large social circle, and so forth. Interestingly, the author quotes Thomas Aquinas: "for no one envies another the knowledge of truth" (p. 471). Apparently, the philosopher suggests that truth is perceptible by anyone.

Another interesting point in Dontsov's discourse is related to the idea that he identifies as a hypothesis: "The source of envy is not the desire to possess, it is the anguish of loss" (p. 488). In envy, we "appropriate" things possessed by others. Through the paradoxical quality of our mind, we consider them to be things that belong to us by right, things that have been taken away from us. That is what causes the hostility toward their current owner. At the least, the lingering emotions experienced by the envier, as described by the author, are similar to the emotions of grief and loss.

At the end of the book, Dontsov goes back to the issue of the universality of envy. It appears that envy has been common to humankind at all times and in all cultures, that one can envy anyone and anything. Despite its unattractiveness, which makes us feel ashamed of this emotion, envy has proven to be enduring.

K. Horney wrote that we live in the culture of comparison. However, back then comparison was usually limited to the people in our immediate surroundings. For modern youth, it has moved to a new arena—Facebook, the world of carefully designed self-images, myths, and legends. Looking at the beautiful images of how others live and reading the success stories of peers, ex-classmates, and fellow students, young users of social networks start to believe that while others succeed, thrive, and enjoy the prizes of life, they themselves are nothing but losers. Even if they suspect that the stories of others might not be entirely true, the challenges of comparison lead to discomfort and negative emotions.

However, comparison with others is not always a source of envy: sometimes it triggers the impetus to achieve more. Dontsov cites increased motivation to achieve and pursue excellence as a potential constructive outcome of envy. The author does not seek to justify the emotion of envy, but psychologists need to find the answer to this question: If envy is a common and hard-to-overcome human trait, what is to be done with it? Its negative effects on the person overwhelmed by it as well as

on human relations in general are obvious. Can we turn the comparison with others, inherent in our society, into a means for better understanding ourselves, our identity and individuality, our place in the world of humans?

Looking for answers to this and many other questions will be much easier with Dontsov's *Phenomenon of Envy*. Perhaps the methodology of describing and analyzing the phenomenology of everyday life will inspire his colleagues and young scholars to do similar research, and psychologists will begin to see other books about well-known phenomena and common emotions, books that bridge the gap between academic science and the description of everyday problems. Ultimately, the goal of psychology is to make humans and the world in general a little better.

As I finish the book, I am honestly trying to answer the question of whether I envy its author. This book is indisputably a big event in psychology in Russia (and beyond, I believe). Moreover, the process of writing such a book means gaining a unique perspective on a large stretch of human history and culture. It is obvious from the book that working on the text was a great pleasure for the author, although it is also obvious that the amount of effort put into this book was tremendous.

However, that is not the key point. I enjoyed this book as one enjoys a well-played piece of music or a beautiful work of art: they fill your heart with delight, pleasure, and joy that leave no room for other feelings. The intellectual pleasure I derived from Dontsov's *Phenomenon of Envy* is so great that it leaves no room for envy.

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