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**INFORMATION CONNECTED CHARACTERISTICS OF THE  
YOUTH'S RESILIENCE IN THE UNFAVORABLE  
ENVIRONMENT**

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***Abstract***

The information society is characterized by a growing interest to the problem of personal and population resilience in connection with the global humanitarian problem of human survival on the planet. Formation of a viable personality becomes the main goal of modern education, as UNESCO notes. Personal resilience is an interdisciplinary, integral indicator of his life and activities in adverse environment, here information processes at the psychophysiological, mental and personal levels are important. However, many researchers consider a person's resilience only as a social characteristic in social environment. The article justifies the interdisciplinary approach to resilience as an emergent property of the system "man – living environment", a complex bio-psycho-social phenomenon in which information processes is significant. On the base of the complex approach to mental, psychophysiological and personal characteristics of resilience, the authors studied the features of working with information of young people who live in the Zabaykalsky Kray, which belongs to the regions of ecological disadvantage. The results of the studies revealed a tendency to decrease the indicators of mental capacity for work (endurance factor and accuracy factor) and intellect among graduates of secondary schools in these regions. But at the same time personal indicators of resilience remained within the boundaries of the averages. The conclusion about the importance of an interdisciplinary approach to the population resilience study in adverse environmental conditions to forecast the success of their socialization was made. The features of socialization programmes aimed at increasing youth's resilience were proposed.

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**Keywords:** Socialization, resilience, ecological trouble, school leavers.



## 1. Introduction

The socialization of children and youth in modern conditions is complicated by the presence of many risks associated with the global environmental crisis, social instability, economic problems, and information globalization. For the resilience – an integral characteristic of life and human activity, the basic resource of human socialization - it is important to forecast the consequences of the unfavorable conditions of the living environment. Successful socialization of the man in a variety of conditions of existence depends on his resilience.

## 2. Problem Statement

The resilience is considered by foreign (Bonanno, Romero & Klein, 2015); Casey, Finsaas, Carlson, Zelazo, Murphy, Durkin, Lister & Masten, 2014; Charney, 2004; Masten & Obradovic, 2006; Nicolas, Kish & Kobetz, 2014; Southwick, Bonanno, Masten, Panter-Brick & Yehuda, 2014; Wachs & Rahman, 2013, etc.) and Russian scientists (Laktionova, 2017; Mahnach, 2016; Nesterova, 2011; Ryilskaya, 2014) as the ability to thrive in difficult living conditions (Theorêt, 2005), and in spite of them to achieve the higher indicators (Linley, Joseph, 2004). The greater part of works of foreign and Russian authors unanimously consider the resilience as a phenomenon mostly socio-cultural, though there are the variety of methodological approaches to the study of the resilience. Accordingly, the term "resilience" includes only personal characteristics of the man.

Although many researchers emphasize the systemic pattern of resilience and its relationship with the environment (Laktionova, 2017; Mahnach, 2016; Wachs & Rahman, 2013), the environment is supposed to be only as socio-cultural conditions of human life. Meanwhile, the living environment of the person includes both the social and the natural conditions of its existence.

The integrity of the psyche of the man and the unity of the natural and social environment of its existence require to refine the interpretation of resilience.

We consider the resilience as a complex bio-psycho-social phenomenon, as a systemic property "man – living environment". The inclusion of personal, mental, psycho-physiological characteristics in the concept allows to expand the analysis of resilience.

It was established by medico-biological studies that the resilience of a person residing in ecologically unfavorable environment is weakened at the biological level. Population illness, degradation of main functions of healthy people illustrate this data. (Gomboeva, 2012, Kolesnikova et al. 2015; and many others)

Systemic pattern of man and his interaction within environment gives a chance to suppose that ecological trouble of environment leads to a decrease of the resilience on both medical and biological level and at the level of the psyche. The authors tested this assumption empirically.

## 3. Research Questions

The interdisciplinary methodological approach to the study of resilience has to be substantiated, the concept of resilience has to be expanded for justifying its indicators and determining them in people residing in the region of ecological trouble of Zabaykalsky Kray (Ekologicheskaya karta RF, 2016), where there is one of the lowest indexes of the potential resilience of the population (Gomboeva, 2012) and also to test

the possibilities of social compensation for negative impacts of environmentally unfavorable environment through school programmes of upbringing and socialization.

#### **4. Purpose of the Study**

is to conduct a theoretical and empirical study of the level of resilience of the youth population residing in the region of ecological trouble.

#### **5. Research Methods**

The methods of comparative analysis of theoretical and methodological bases of resilience researches, simulation of psychic phenomena were used in the theoretical part of the work. In the empirical part - we used a test method for the study of the psyche.

Psycho-physiological level of resilience was characterized by indicators of mental health of the subjects, determined with the test "E. Landolt Ring" (Sysoev, 2007).

Mental level was assessed using indicators of intellectual development revealed with the application of progressive matrices by John. Raven. Personal level of resilience was performed with the indicators of the test of the hardiness of D. A. Leontiev, E. I. Rasskazova (2006). Mathematical data processing was carried out using the F-test ( $\varphi^*$  – test).

School leavers in Zabaykalsky Kray were under the study. The conventional natural gradient and the conventional social gradient were used to rank different areas of Zabaykalsky Kray.

#### **6. Findings**

A comparative analysis of theoretical and methodological foundations of studies of resilience has shown that in foreign and domestic science there is a variety of approaches, however, they have addressed the problems of resilience of the man to social environment. The approaches are the following: socio-cultural environmental (Mahnach, 2016), psychosocial (Laktionova, 2017; Nesterova, 2011), system dynamical, communicative (Ryilskaya, 2014). The natural environment as a factor of human resilience remains beyond the boundaries of scientific analysis in such studies.

Eco-psychological approach to the development of the psyche (Panov, 2014), was used in the present study. Its main methodological requirement is the analysis of psychic phenomena in the system "man – living environment (natural and social)". On the basis of the provisions of this approach, we propose the following working definition of resilience.

The resilience is a complex the nature controlling and society developing, integral characteristic of a person, an emergent property of the system "man – living environment", which provides actual and potential level of mental activity in these natural and social conditions.

Modeling of resilience as an independent system revealed in its structure psycho-physiological, mental and personal (social) levels in accordance with the system organization of man by A. N. Leontiev (1977).

The hypothesis of negative characteristics of the natural environment can mimic the performance of human energy-intensive types of mental activity has been empirically tested.

The article presents the results of the diagnostics conducted in the three territories of Zabaykalsky Krai: in the area of environmental crisis, the settlement of Baley; in the town of Chita - areas with significant environmental problems, administrative, economic and cultural center of Zabaykalsky Krai. Control area - environmentally safe district center - the village of Krasny Chikoy.

The sample consisted of 286 school leavers. The average age of the subjects was  $17 \pm 0.6$  years. All subjects were healthy.

Comparative analysis of the most energy-intensive indicators of psychophysiological level of resilience of the subjects was conducted on the basis of the data presented in the table 1.

**Table 01.** The Number of subjects ( % ) with indicators of psychophysiological level of resilience (mental health) on the territories with different conditions of the living environment

Researched Areas and Sample Size	The area of environmental crisis	The area with significant environmental problems	Environmentally safe area
	Settlement of Baley n = 97	Town of Chita n = 109	Village Krasny Chikoy, n = 80
Test Scales			
<i>The Coefficient of Endurance (CE):</i>			
Low	48,1	43,3	19,2
Average	28,1	27,4	33,3
High	23,8	29,3	47,5
<i>Coefficient of Accuracy (CA):</i>			
Fluctuations are not taken into account	43,3	48,6	56,2
Moderate changes	18,9	23,8	35,0
Significant changes, fatigue	37,8	27,6	8,8
<i>The Integral Evaluation of the Level of Efficiency:</i>			
Low level	16,5	10,1	2,5
Average level	75,0	71,6	92,5
High level	8,5	18,3	5,0

A trend to reduce the coefficient of endurance (scale CE), which is an energy efficient indicator, is quite clear in ecologically unfavorable territories according to the table. The largest number of subjects with low endurance is among residing in the settlement Baley.

The number of subjects with low coefficient of endurance in the sample of school leavers from ecologically unfavorable regional center is smaller than from Baley, but the differences are not significant, although the parameters of the social environment of Chita are much better than in Baley.

The better conditions of the social environment of the regional center are not able to compensate perfectly the negative effects of ecological trouble.

In the sample residing in ecologically safe area - in the village of Krasny Chikoy there are significantly less subjects with low endurance (the significance of the differences in the samples of Baley and Krasny Chikoy -  $p < 0.01$ ; while in the samples of Baley and Chita  $p < 0.05$ ).

Least subjects with high coefficient of endurance are in the sample of residents in the territory of the ecological crisis in Baley, and the most are in the sample of inhabitants of ecologically prosperous village of Krasny Chikoy ( $p < 0.01$ ). Differences in the number of subjects with a high coefficient of endurance in the samples of residents of ecologically unfavorable territories are not significant, although, again, the regional center of Chita has the best facilities of social environment: serious environmental problems equalizes the indicators of school leavers.

Differences remain in values of the coefficient of accuracy (CA). The number of subjects from ecologically unfavorable territory's sample experiencing fatigue in the handling of information is much more than in the sample of inhabitants of the territory, environmentally friendly (the significance of the differences in the samples of Baley and Krasny Chikoy -  $p < 0.01$ ; in the samples of Chita and Krasny Chikoy  $p < 0.05$ ). Differences in the number of subjects with low coefficient of accuracy in the samples living in ecologically unfavorable areas are not significant.

The data indicates that there is a distinct trend towards the reduction of energy-intensive psychophysiological level of resilience of permanent residents of ecologically unfavorable territories, despite of the fact that the integral evaluation of the health (efficiency) of the majority of all subjects, regardless of the territory where they live, corresponds to the average level.

The development of their intellect determines the rates of mental level of resilience of the subjects. Intellect is one of the main factors of the successful adaptation and socialization, especially in the informational society.

According to the data results the majority of tested school leavers has an average level of intellect, regardless of the settings of the living environment of the territories of their permanent residence.

But the number of subjects with high level of intellect in the sample residing in the territory of the ecological crisis in Baley is much less than in the sample of school leavers living in ecologically prosperous village of Krasny Chikoy (significance of differences is  $p \leq 0,01$ ). They are also smaller than in the sample of inhabitants of Chita (but in this case the differences did not reach the level of significance). The number of subjects with high level of intellect in samples of inhabitants of the town of Chita (with the best characteristics of the social environment) and Baley has almost no differences.

Chita is a significant territory of ecological trouble, and it's better social conditions are not always able to compensate the negative effects of ecologically unfavorable influences of the natural environment.

The largest number of subjects with indicators of below-average intelligence level is included in the sample of inhabitants of the territory of the ecological crisis, there are much more subjects living in Baley among them (the differences are significant at  $p \leq 0,01$ ) than in the town of Chita.

In the sample of Baley there are twice subjects with indicators of below-average intelligence levels than in the sample of inhabitants of ecologically prosperous village of Krasny Chikoy, although the social status of the latter territory is below.

Subjects with indicators of mental defect are detected only in the sample of residents of the environmental crisis area - settlement Baley. In the samples of the inhabitants of the town of Chita and environmentally prosperous village there are no such results.

In the mental level of resilience of the school leavers living in ecologically unfavorable territories we can see the "drift" of indicators in the range of a reduced rate. It can be concluded, summarizing the results of the diagnostics of intellectual development.

The successful human socialization largely depends on the hardiness of the youth population, an integral personal characteristic of resilience (Maddi, 2005).

The results of testing the indicators of hardiness of almost of the subjects are included in borders of average values, regardless of territory of residence. A significant number of the school leavers in all areas has above average indicators of resilience.

So there is leveling of indicators of a personal level of the resilience in territories with different conditions of living environment.

We believe that this is due to the laws of inter-level interactions within the system of resilience and mainly due to compensating social impacts.

The most of the subjects that make up the total sample are adapted, sufficiently active, resistant to stress - socialization of most of them is quite successful. It can be concluded in accordance with the presented results.

The results of these and other studies (Kolesnikova et al., 2015) were used to develop sample programmes for the education and socialization of schoolchildren in secondary school (programmes of environment culture, the culture of a healthy and safe lifestyle). Considering that two-thirds of the country's population lives in an ecologically unfavorable territory, the task of updating the content of environmental education for enhancing youth's resilience is of a state importance. The developed sample programmes involve various socio-cultural mechanisms for preserving and strengthening the resilience of young people. They include: ideas of sustainable development of man and society, "three-dimensional" thinking (natural-socio-economic, past-present-future, global-local-personal), environmental literacy - the experience of applying of the ecological imperative and the principles of action for sustainable development (moral imperatives) in everyday situations; the bases of environmentally appropriate educational culture and culture of a healthy and safe way of life. An interdisciplinary approach to monitoring the effectiveness of education and socialization programmes is substantiated. It is proved that the programmes allow to reduce the dependence of the resilience on the environment situation and the individual typological characteristics of children and the state of their health; to increase energy psychophysiological indicators of academic work (up to 20-25%). Number of children with resistance to stress significantly increases due to raise of their self-regulation.

## **7. Conclusion**

The necessity of applying eco-psychological approach to the analysis of the psyche to explore the resilience was justified; the content of the concept was specified. There are physiological, mental and personal levels, linked by relations of hierarchy in the structure of the resilience.

The concept was operationalized, multi-level indicators of resilience were defined: mental performance is on the psychophysiological level, the development of intellect is on the mental level and hardiness is on a personal level.

Empirical study of the resilience of the school leavers residing in the differing conditions of the living environment in the territories of Zabaykalsky Krai - the region of ecological trouble – was done.

The empirical study runs in the following conclusions.

There is a distinct trend towards the reduction of energy-intensive psychophysiological level of resilience of the subjects, residing in ecologically unfavorable territories. The major part of the indicators of mental health of the tested subjects is lower than in the sample living in environmentally favorable areas.

The trend continues on the mental level of resilience. In terms of development of intellect of the subjects, residing in ecologically unfavorable conditions, the detected drift range is in reduced rate.

The social compensation impact of ecological trouble on the human psyche is possible. But the social environment is not always able to compensate completely the negative influence of ecologically unfavorable environment.

The subjects live on different territories, but resilience indicators on the personal level are in borders of average values, regardless of the territory of residence.

The results indicate the need to consider population differences of the resilience while programmes of socialization are prepared or developed.

In the applied part of the study, sample programmes for the upbringing and socialization of pupils of secondary school (programmes of environment culture, the culture of a healthy and safe lifestyle) were developed. The conclusion was made about the importance of an interdisciplinary approach to the development and monitoring of education and socialization programmes.

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