Research article

The representation of work in people with different individual mental resources

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Abstract: The paper is devoted to the revealing relations among the concept "work" as a correlate of the individual picture of the world and indicators of human mental resources. To the main issue is whether people with different mental resources differ in their views on work. Design included assessment of individual mental resources (temperament, fundamental personality traits, character traits, cognitive styles, intelligence and motivation) and directed associative experiment (stimulus word "work"). Participants of the experiment were 1110 persons aged 17-57 years. We processed the data by mathematical, linguistic and statistical approach. The results of the study showed that the apparently, it is very important for more emotional and more active respondents their emotionally-evaluative attitude to work (cheerful, calm, active, beloved, responsible), while for less emotional – spatio-temporal (the closer and less work - the better) (close, long, short, large, slow).
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1. Introduction

Every person chooses his future profession depending on the capabilities, desires and plans he has for life. So, no wonder, work is considered as an integral part of a human's life. Of course, everyone wants a highly-paid prestigious job that can not only give you a chance to enter a new social level in the society but for which no effort is needed, however the reality and our desires very often do not coincide.

Work is an essential part of human existence, in which his individual picture of the world is formed, through the prism of which his ideas about the world, society and his place in the system of social relations that give man existence are refracted [1]. Therefore, the work is a topical subject of research and study of scientists from different fields: psychology [2], linguistics [3], sociology [4], economics [5], etc. Thus, concept with confidence can be attributed to the most important, value concepts.

The concept, according to M. V. Pimenova [6] is an interdisciplinary phenomenon since it is used in the whole complex of sciences, including in different directions of linguistics; and has a complex and multi-dimensional structure. A concept as a cognitive phenomenon is a unit of the mental resources of our consciousness and that information structure that reflects human knowledge and experience; substantial operational memory unit, mental lexicon, conceptual system and brain language (lingua mentalis), the whole picture of the world, as reflected in the human psyche [7].

In modern psychology concepts are defined as a core factor in the structure of individual mental resources, that determines the intellectual productivity [8]. Concepts take an active part in all forms of organization of mental experience, determining the peculiarities of the individual picture of the person's world, arbitrary self-regulation of mental activity and peculiarities of his social behavior [9, 10, 11].

The studies of M. A. Kholodnaya and E. V. Volkova revealed that the level of organization of concepts determines the characteristics of the conceptualization of what is happening, the level of intelligence and creativity, competence and success of professional activity [8]. Concepts perform a core function in the structure of individual mental resources and determine to a large extent the productivity of human life, and, consequently, can determine the idea of work and attitude to it [12, 13].

The research analysis of the dictionaries of the Russian language shows that the word "work" has several meanings such as chore; an activity; business; occupation; achievement; effort; a place; creation; effort; employment; endeavor; industry; job; performance; production; struggle; task etc. [14, 15, 16].

Thus, the question arises whether young people with different mental resources differ in their views on work?

The purpose of the research is to study the relationship between the characteristics of the organization of the concept of "work" associated with the individual psychological properties of the individual, as a correlate of the individual picture of the world and the mental resources of a person at the stage of early adulthood.

2. Materials and Methods

The research was carried out from 2017 to 2018. Participants took part in a research on a voluntary basis in compliance with the generally accepted ethical standards of the organization of psychological research. In order to reduce social desirability participants did not specify their names, but only their age and gender. Participants of the study were given forms with instructions and stimulus material, in case of difficulties, the researcher answered the questions.
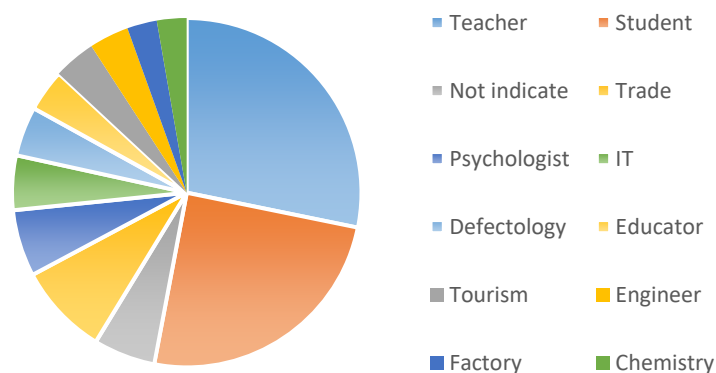
2.1 Participants

The study involved 1100 people from Russia (Kaluga, Kostroma, Perm, Taganrog, Moscow) in various fields of activity. The minimum age of the respondents - 17 years. Maximum - 57 years. The average age of the sample - 24,46 ± 6,59.

Detailed data on occupations can be found in Figure 1.

Figure 1. Occupation profile of the respondents

2.2. Methods

A multiple design was used in our research including assessment of (a) the organization of the concept *Work* (directed associative experiment) and estimation of (b) individual mental resources: 1) temperament, 2) fundamental personality traits, 3) character traits, 3) cognitive styles, 4) motivations.

2.2.1. Method of assessment of concept organization

80   To study the peculiarities of the concept "Work", the method "Directed associative experiment"
81 was used. Respondents were asked to write as many adjectives as possible corresponding to the
82 stimulus word. The given time - 2 minutes.
83   Respondents ' answers (list of adjectives) were analyzed by the following indicators:
84 1.   The field structure of the concept that included the core of the concept, near periphery and far
85 periphery. The first reaction to the stimulus word was considered since many researchers pointed
86 out that the first reaction is the freest from social desirability and allows us to reveal the implicit
87 notions about the object under study [17].
88 2.   Objectification index of sensory-emotional modalities (sensory; emotionally-evaluative; spatio-
89 temporal modalities) - the ratio of the measure of objectification (sensory-emotional modalities) and
90 the measure of the volume of the associative field (the number of written words) (the closer the
91 objectification index to 1, the higher the level of objective sensory-emotional representation of the
92 concept) [9].
93 The sensory-emotional features of the concepts:
94   •   Sensory - heavy, light, loud, warm, sedentary.
95   •   Emotionally-evaluative - cheerful, calm, active, beloved, responsible.
96   •   Spatio-temporal, for example: close, long, short, large, slow.
97
98 *2.2.2Methods of assessment of individual mental resources*
99   To estimate temperament properties the shortened version of the Structure Temperament
100 Questionnaire [18] was used.
101   To evaluate the fundamental personality dimensions the Russian modified, validated, and
102 shortened version of Eysenck PEN-questionnaire [19] was used.
103   To assess character traits the shortened version of the questionnaire [20] was used.
104   To estimate cognitive styles the shortened version of Cognitive Personality Styles Questionnaire
105 [21] was used.
106   Motivation was assessed by achievement motivation indicator, accessibility motivation
107 (orientation to accessibility of professional activity), and value motivation (orientation to personal
108 value of professional activity) [20].

109 *2.3. Mathematical Analysis*

110   Mathematical data processing was carried out by using the IBM SPSS Statistics 22. Statistical
111 processing techniques of empirical data included descriptive statistics, parametric methods for
112 identifying differences (Independent-Samples T-Test) and relationships (Hierarchical Cluster
113 Analysis Ward's Method).

114 **3. Results**

115   Four homogeneous groups were allocated based on Hierarchical Cluster Analysis (Ward's
116 Method, T-scores by variable) to reveal the relations among the features of the organization of the
117 concept *Work* and indications of human mental resources we identified.
118   Average values of the indicators of fundamental personality dimensions in the groups are
119 presented in Table 1. The significance of differences (p) in indicators between the groups of
120 respondents varies from 0.000 to 0.002.
121   **Table 1.** Comparative analysis of formal-dynamic properties of individuality in early
122   adulthood

	Mean			
Variables	**Cluster 1** **N= 427**	**Cluster 2** **N = 49**	**Cluster 3** **N=107**	**Cluster 4** **N= 317**
Total Activity / T.A.	4,50±1,317	7,49±1,024	7,98±0,931	4,20±1,339
Total Emotionality/ T.E.	7,32±1,154	4,59±1,164	7,77±0,842	3,92±1,041

123   The first cluster united people less active, but more emotional.. The second cluster include more
124 active and less emotional respondents. Third cluster has more active and more emotional
125 respondents. The fourth cluster includes less active and less emotional young people.
126
127 *3.1. Notions about Work in respondents with different formal-dynamic properties of individuality*
128   *in early adulthood*
129   The results of a comparative analysis of notions about *Work* in respondents with different
130 formal-dynamic properties of individuality are presented in Table 2.
131   **Table 2.** The core and periphery of the concept Work in different groups of respondents

Association frequency	The frequency of occurrence of the trait							
	More active				Less active			
	More emotional (Cluster 1)		Less emotional (Cluster 2)		More emotional (Cluster 3)		Less emotional (Cluster 4)	
Core	Favorite	13,1%	Interesting	22,5%	Interesting	18,5%	Interesting	16,7%
Near periphery	Interesting	11,2%	Responsible	8,8%	Hard	8%	Difficult	8,8%
	Difficult	11,2%	Favorite	7,2%	Responsible	7,3%	Hard	7,9%
	Responsible	8,4%	Hard	6%	Difficult	5,4%	Responsible	5%

132   Frequency analysis of associations (first reactions) showed the predominance positive emotional
133 characteristics in the structure of notions about Work. However, a considerable number of peripheral
134 features indicated a that any work isn't easy as it requires effort and responsibility. The core of the
135 concept is the word "interesting". The near periphery is responsible, hard, difficult.
136   Now consider the peculiarities of the respondents ' ideas about their work, in groups of students
137 with different degree of emotionality and activity. As it can be seen from the **table 2**, for more active
138 respondents work is "interesting" and "favorite", and for less active - "interesting" and "difficult".
139   To understand the reasons for this choice of words, we turn to the tables (**tables 3,4,5,6**) of
140 comparative analysis.
141
142 *3.2. Interrelations between individual's mental resources and his/her representation about Work*
143   Comparative analysis of individual mental resources in respondents with varying fundamental
144 personality traits revealed significant differences in indicators of temperaments, cognitive styles, and
145 motivation. (Table 3)
146   **Table 3.** Comparative analysis of individual mental resources in young people with varying
147   fundamental personality traits (degree of activity and emotionality)

Variables	More active		Student t-criterion	Less active		Student t-criterion
	More emotional (Cluster 1)	Less emotional (Cluster 2)		More emotional (Cluster 3)	Less emotional (Cluster 4)	
Formal-dynamic properties of individuality						
Psychomotor sphere	7,29	7,01	-1,539	4,53	4,20	2,038*
Intellectual sphere	7,49	7	-2,732***	4,77	3,92	2,682**
Communication sphere	7,23	6,64	-3,091***	5,02	4,28	2,016*
Total Activity	7,98	7,49	-4,390***	4,50	4,45	3,044***
Total Emotionality	7,77	4,59	-28,874***	7,32	4,74	42,022***
Fundamental personality traits						
Extraversion	6,93	6,49	-2,360**	5,21	4,79	3,082***
Neuroticism	6,93	4,9	-10,513***	6,49	4,80	13,565***
Psychoticism	5,30	5,26	-0,151	5,18	5,34	-1,144

148   As it can be seen from **Table 3**, more active and more emotional (cluster 1) respondents are
149 mostly characterized by a high level of intellectual abilities, high flexibility of thinking, high speed of
150 mental processes (intellectual sphere). They easily enter new social relationships, quickly verbalize,
151 and have an urgent need for communication (communicative sphere). They are very sociable, have a
152 wide range of acquaintances (extroversion), emotionally stable, easy to adapt to various stressful
153 situations (neuroticism). Cluster 3 unites less active and more emotional young people. It is
154 characterized by a high need for movement, high flexibility, high rate of psychomotor behavior
155 (psychomotor sphere).

156   **Table 4.** Comparative analysis of character traits in groups of respondents with different level
157 of formal-dynamic properties of individuality in early adulthood

Variables	More active		Student t-criterion	Less active		Student t-criterion
	More emotional (Cluster 1)	Less emotional (Cluster 2)		More emotional (Cluster 3)	Less emotional (Cluster 4)	
Hyperthymicity	6,51	6,35	-0,803	4,98	4,50	2,878***
Stuckness	6,43	4,76	-7,685***	6,01	4,90	8,282***
Emotivity	6,25	4,89	-6,994***	5,99	4,67	10,576***
Pedanticity	6,54	5,91	-2,884***	5,52	5,05	3,517***
Anxiety	5,74	4,83	-4,196***	6,11	5,07	8,348***
Cyclothymicity	6,17	4,78	-6,040***	6,09	5,11	6,762***
Demonstrativeness	6,79	6,33	-2,236**	5,39	5,10	2,116**
Dystimicity	3,26	2,58	-3,660***	3,40	3,05	2,883***
Exalitveness	5,92	4,87	-4,661***	5,94	5,12	6,182***

158   More active and more emotional respondents (Cluster 1) are hypersensitive to critical remarks
159 (Stuckness), a keen sense of justice (Emotivity), a constant desire to maintain order (pedantry), mood
160 swings for no apparent reason (Cyclothymicity), a constant desire for attention (Demonstrative).

161   Less active and more emotional respondents (Cluster 3) are distinguished by high activity, high
162 level of optimism and sustained good mood (Hyperthymia), as well as a constant feeling of anxiety
163 (anxiety), they focus on the dark sides of life (Distyme).

164   Cluster 2 and Cluster 4 are characterized by almost the same indicators of Exaltation. Therefore,
165 they are emotionally unstable and show a strong reaction to different life situations.

166   **Table 5.** Comparative analysis of cognitive styles in groups of respondents with different level
167 of formal-dynamic properties of individuality in early adulthood

Variables	More active		Student t-criterion	Less active		Student t-criterion
	More emotional (Cluster 1)	Less emotional (Cluster 2)		More emotional (Cluster 3)	Less emotional (Cluster 3)	
Field dependence	6,22	5,19	-4,942***	5,79	4,94	6,048***
Narrow equivalence range	6,58	5,89	-3,035***	5,68	4,87	5,738***
Wide range of equivalence	5,67	5,47	-0,839	5,34	4,98	2,582**
Rigidity	6,06	5,13	0,092	6,15	5,14	7,427***
Impulsivity	6,40	5,71	-3,655***	5,52	4,80	4,978***
Reflectivity	6,48	5,64	-3,642***	5,40	4,84	3,933***
Concrete conceptualization	6,53	5,43	-5,239***	5,89	4,95	6,823***
Abstract conceptualization	6,53	6,50	-5,239	5,27	4,91	2,659***
Tolerance	6,76	6,29	-2,262**	5,28	4,97	2,258**
Intolerance	6,03	5,12	-3,663***	5,79	5,13	4,992***

168 According to the data presented in table 4, Cluster 1 is characterized by a focus on external
169 features in solving social problems (Field dependence); high sensitivity to details (Narrow range of
170 equivalence); the ability to classify objects of activity according to some generalized categorical
171 grounds (Wide range of equivalence); spontaneous, often erroneous decisions (Impulsivity); slow
172 pace of decision-making (Reflectivity); dependence on the status and authority of the source of
173 information (Specific conceptualization), ability to make original decisions (Tolerance to unrealistic
174 experience), but block unacceptable, contradictory information (Intolerance to unrealistic
175 experience).

176 Less active and more emotional respondents (Cluster 3) are distinguished by strict adherence to
177 the outlined plan and activity instructions under any circumstances (Rigidity of cognitive control), as
178 well as for them it is also common to choose atypical ways of solving the problem (Abstract
179 conceptualization).

180 **Table 6.** Comparative analysis of indicators of motivation in groups of respondents with
181 different level of formal-dynamic properties of individuality in early adulthood

Variables	More active		Student t-criterion	More active		Student t-criterion
	More emotional	Less emotional		More emotional	Less emotional	
Achievement motivation	7,26	6,31	-5,425***	5,37	4,38	7,052***
Accessibility motivation	6,26	6,30	0,155	5,59	5,07	2,474**
Value motivation	5,93	5,36	-2,418**	5,46	4,81	4,458***

182 It should be emphasized that all clusters are characterized by high indicators of motivation of
183 achievement. However, the highest indicators of motivation are shown in Cluster 1, which means
184 that for these people, the importance and importance of the profession is more important than its
185 availability. As for less active and more emotional respondents (Cluster 3), there is an opposite
186 tendency observed: the accessibility of the profession predominates over its value.

187 **Table 7.** Comparative analysis of objectification index of sensory-emotional modalities (sensory;
188 emotionally-evaluative; spatio-temporal modalities) in groups of respondents with different level of
189 formal-dynamic properties of individuality (indicator *Activity*) in early adulthood

Variables	More active		Student t-criterion	Less active		Student t-criterion
	More emotional	Less emotional		More emotional	Less emotional	
Sensory modality	0,1941	0,1996	1,310	0,2184	0,2475	0,287
Emotionally-evaluative modality	0,7284	0,6993	-1,375	0,6757	0,66452	-1,251
Spatio-temporal modality	0,0775	0,1012	0,457	0,1058	0,1073	1,819

190 As it can be seen from Table 7, the difference between the clusters depending on activity was not
191 revealed. Consequently, the question arises whether people with different emotionality differ in their
192 views on work?

193 **Table 8.** Comparative analysis of objectification index of sensory-emotional modalities (sensory;
194 emotionally-evaluative; spatio-temporal modalities) in groups of respondents with different level of
195 formal-dynamic properties of individuality (indicator *Emotionality*) in early adulthood

Variables	More emotional		Student t-criterion	Less emotional		Student t-criterion
	More active (Cluster 1)	Less active (Cluster 2)		More active (Cluster 3)	Less Active (Cluster 4)	
Sensory modality	0,1941	0,2184	-1,347	0,1996	0,2475	-2,935**
Emotionally-evaluative modality	0,7284	0,6757	2,414*	0,6993	0,66452	2,836**
Spatio-temporal modality	0,0775	0,1058	-2,334*	0,1012	0,1073	-0,556

196 According to available data form table 8, more active and more emotional respondents (Cluster
197 1) are characterized by a greater representation of emotionally-evaluative features of the concept of
198 Work, as well as for less emotional and more active differ from less active ones by a smaller
199 representation of sensory signs, but more emotional-evaluative ones.

200 Apparently, it is very important for more emotional and more active respondents their
201 emotionally-evaluative attitude to work, while for others – spatio-temporal (the closer and less work
202 - the better).

4. Discussion

204 Analysis of all gathered associations based on the elements of the core of the concept allowed
205 identifying positive emotional manifestations as the main categories of ideas about Work. The
206 predominance of emotional characteristics in the structure of notions about Work, many moving
207 peripheral elements demonstrates the insufficient formation of the concept.
208 A selection of words like «Favorite», «Interesting», «Difficult», «Responsible» more active and
209 more emotional people may be associated with, that they are important emotional component of
210 the work, as well as extreme accuracy and integrity. Spatio-temporal component is the place to be,
211 since it is likely that this type of people will have enough resources to deal with diverse parts of the
212 work.
213 More active and less emotional respondents describe the work with the words: «Interesting»,
214 «Responsible», «Favorite», «Hard» since due to the prevalence of emotional-evaluative modality they
215 are inherent transcend direct contact with reality and move into the region of more distant temporal,
216 spatial and semantic contexts.
217 Less active and more emotional people describe work with words «Interesting», «Hard»,
218 «Responsible», «Difficult» probably because of the difficulties experienced when changing the ways
219 of processing information in a situation of solving complex and ambiguous tasks.
220 «Interesting», «Difficult», «Hard», «Responsible» - words that are chosen by less active and less
221 emotional people based on their low energy level, high demand for sensory modality and high
222 demand for working space availability.
223 Less emotional people prefer words «Interesting», «Responsible», «Hard» because, presumably, the
224 sensations of their work are important to them.
225 Less active people choose words «Hard» и «Difficult», probably because they may lack the
226 resources and strength to carry out such activities.
227 Single word choice «Interesting» It may be related to the fact that work for all respondents excites
228 interest, is something entertaining and curious.

5. Conclusions

230 The data obtained revealed significant differences in the notions about work in people with
231 different mental resources differ. Analysis of all proposed associations based on the elements of the
232 core zone allowed identifying positive emotional manifestations as the main categories of ideas about
233 work. The predominance of emotional characteristics in the structure of notions about work the
234 sufficient formation of the concept.

References

240 1) Volkova E.V., Ten E.A. Representations of work as a fragment of an individual picture of the
241 world in the period of early adulthood. The world of psychology. 2017. No. 2 (90). P. 92-100.
242 2) Lytkina Oksana Ivanovna. Problems of studying the concept in modern linguistics. Rhema. Rema,
243 no. 4, 2009, pp. 67-80.
244 3) Klimin A.A. To the problem of classification of key language concepts in the economic sphere.
245 All-Russian Journal of Scientific Publications, no. 6 (7), 2011

4) Mashutina Elena Anatolyevna. Structural modeling of the conceptual space of the term «concept». Chelyabinsk State University Bulletin, no. 7, 2010, pp. 101-105

5) Chekulai I.V., and S. Vetter. Representation of the concept of "Loneliness "in the scientific picture of the world. Scientific statements of Belgorod State University. Series: Humanities, vol. 21, no. 6 (177), 2014, pp. 128-133.

6) Pimenova, M.V. (2013). Types of concepts and stages of conceptual research. Herald of Kemerovo State University, 2 (2 (54)), 127-131

7) Volkova E.V., Dudnikova T.A. Features of life productive mechanisms in people with different types of individuality. Bulletin of the Kostroma State University. Series: Pedagogy. Psychology. Sociokinetics. 2018. Vol. 24 No. 3. Pp. 39-43

8) Kholodnaya, M. A.& Volkova, E. V. (2016). Conceptual structures, conceptual abilities and productivity of cognitive functioning: the ontological approach. Procedia-Social and Behavioural Sciences, 217,914-922. Retrieved from doi: 10.1016/j.sbspro.2016.02.040

9) Wecker, LM. Mental processes: [In 3 volumes]. - L.: Publishing house of the Leningrad University, 1976. - T. 2. Thinking and intelligence. - 342 pages

10) Volkova E.V. The triune aspect of the functional organization of the concept: past, present and future. World of Psychology 2013 №2 (74). Pp. 29-41

11) Kholodnaya M.A. Psychology of Conceptual Thinking: From Conceptual Structures to Conceptual Abilities. - M.: Publishing House "Institute of Psychology RAS", 2012. - 288 p

12) Volkova E.V., Dudnikova T.A. The notions about terrorism in young people with different individual mental resources (in print). 7th Annual International Conference on Cognitive - Social, and Behavioural Sciences. The European Proceedings of Social & Behavioural Sciences. icCSBs November 2018. ISSN: 2357-1330

13) Volkova Natalia, Peculiarities of the semantic space of concepts "resources" and "potential" in groups of students with different IQ level // The 10th Annual Embodied and Situated Language Processing. Center for Cognition and Decision Making National Research University Higher School of Economics, Moscow, Russia September 10-12, 2017. P. 126

14) Dictionary of the Russian language: In 4 volumes / Under the editors of D. N. Ushakov. - M.: Soviet Encyclopedia: OGIZ, 1935-1940

15) Efremova, T. F. Modern Russian Dictionary of Explanation: 3 vol. - Moscow: AST, Astrel, Harvest, 2006

16) Ozhegov S. I. The Explanatory Dictionary of the Russian Language / S. I. Ozhegov, N. Yu. Shvedova. - 4th ed., Ext. - Moscow: Azbukovnik, 2000. - 940 p

17) Popova ZD, Sternin I.A. Essays on cognitive linguistics. Third edition, stereotypical. Voronezh, 2003

18) Rusalov, V. M., & Trofimova, I. N. (2007). The structure of temperament and its measurement. Toronto, Canada: Psychological Services Press.

19) Slobodskaya, H. R., Knyazev, G. G., & Safronova, M. V. (2006). Short form of Eysenck personality questionnaire and its use for assessing the risk of substance abuse. Psychological Journal,3, 94–105

20) Volkova, E. V., Rusalov, V. M., & Nilopets, M. N. (2018). An expert system for evaluation of human mental resources: Holistic and developmental approach. 2017 Intelligent Systems Conference, IntelliSys 2017

21) Volkova, E. V., & Rusalov, V. M. (2016). Cognitive styles and personality. Personality and Individual Differences,99, 266–271.