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GENDER AND EDUCATION ON
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DIFFERENT DOMAINS IN
RUSSIAN REGIONS**

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THE IMPACT OF VALUES, GENDER AND EDUCATION ON CREATIVE BEHAVIOUR IN DIFFERENT DOMAINS IN RUSSIAN REGIONS³

This paper presents results of the research into different types of creative behaviour and their predictors in the Central and North-Caucasus federal districts of Russia (N=2046). The revised PVQ-R questionnaire of Schwartz for values measurement and the modified Creative Behaviour Inventory (CBI) of Dollinger for creative behaviour measurement were used. The model with five different domains of creative behaviour: *visual art*, *literature*, *craft*, *performance*, *organizational creativity* and generalized creativity was confirmed in a simultaneous CFA in both regions. This model with values, gender and level of education as predictors was tested using structural equation modelling with AMOS 19.0. Values, education and gender influence creative behaviour in different domains. The value of Openness to Change positively, and the value of Conservation negatively influence creative behaviour in different domains in both the regions. The impacts of gender and education on creativity have domain and regional specifics: *craft* is a ‘female’ domain of creativity whereas *organizational creativity* is a ‘male’ one; higher education promotes *organizational* and *visual* creativity in both regions and *literature* creativity in the North Caucasus.

JEL Classification: Z.

Key words: creativity, domains of creativity, values, gender, education.

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Introduction

Nowadays there is growing importance of creativity in professional and daily life because modern public discourse closely connects creativity with such characteristics as change, innovation and progress. Undoubtedly, modern society appreciates these characteristics, be they inherent in a person, company or product, and studies "the functioning mechanism" of creativity to ensure its efficient development and utilization. Moreover, creativity was named the most important economic resource of the 21st century [Florida, 2002]. This explains the vast array of studies aimed at identifying social, cultural, personal, and other determinants of creativity.

The term "creativity" is interpreted ambiguously in contemporary social sciences: in education creativity means innovation, in business—entrepreneurship, in mathematics—the ability to find solutions to problems, in art, music in particular, this term means as creation of an aesthetic product [Reid, Petocz, 2004]. Research suggests that creativity is a complex phenomenon [Runco, 2004], which is difficult to control and formalize, and it is difficult to determine its nature and psychological meaning [Goldenberg et al., 1999]. The definition of this construct relates directly at least to four possible levels of psychological reality and, correspondingly, fields of research: (1) the individual, the subject of creativity, (2) the cognitive processes involved in the production of creative ideas (3) the environment, where the creative act takes place, (4) the product or result of creative activity [Rhodes, 1961].

Most scientists agree that creativity is a quality of the individual or process, capable of providing suitable, new, and atypical solutions to a problem [Mayer, 1999]. It implies creating a product that would satisfy the conditions of utility and novelty, being recognized as such by experts in their respective fields [Amabile, 1983, 1996; Brown, 1989; Hennessey, Amabile, 2010; Mayer, 1999; Piffer, 2012].

All these components are most fully featured in the complex definition of creativity, developed by Amabile [1996], which we use as a basic definition:

(1) a product or action is creative by agreement of relevant independent observers, these observers being individuals or organizations familiar with the area in which the product is created or the action takes place;

(2) a product or action is creative if it presents novelty, corresponds to a set task, and when the task itself is heuristic rather than algorithmic. Amabile defines algorithmic problems as those with a simple and obvious way to the solution; heuristic problems are those for which algorithms should be developed. These tasks are called "problem discovery" [Amabile, 1996, p. 33-35].

Creativity or creativities: the universality or domain-related specificity of the phenomenon

The question of the universality of creativity causes debate among representatives of different areas, there is some agreement only that "everyone is creative in a different way". In general, researchers tend to take rather polar positions: from full recognition of the universality of the phenomenon as a general ability [Torrance, 1974] to constructing absolutely independent sets of features necessary to achieve a high level of creativity in various spheres of activity [Baer, 1994; Kaufman, Baer, 2004; Csikszentmihalyi, 1990]. To indicate this Kaufman and Baer [2004] introduced the term "creativity profiles". There is also a third point of view, which balances between these two poles and considers creativity as a partially universal ability [e.g., Amabile, 1996; Conti et al., 1996; Plucker, 1998].

Understanding creativity as a single and universal ability is characteristic of psychometric intelligence, and talent research. For example, early tests of creativity implied its universality [Torrance, 1974]. This strongly echoes with Spearman's model concerning the general intelligence factor (G). Within this model differences in the results of intelligence tests are explained by two factors: the first includes the individual qualities that allow more successful coping with the tasks of a certain type, the second—the G factor of general intelligence—with intellectual tasks in general. By analogy with G, Guilford [1968] singled out five major characteristics of general creativity: Productivity, Fluency or Performance, Flexibility, Originality, Complexity.

With more understanding of creativity and the research base, it became clear that creativity differs greatly in different areas, in its manifestations, its content, and the specific requirements and criteria for evaluation. To resolve the contradictions in this respect Amabile [1983, 1988] proposed a three-component model of creativity: (1) skills required for a particular area, (2) general skills and abilities associated with a high level of creativity, and (3) motivation to solve a particular problem. This model introduces skills specific to a certain field which are needed in this particular area: knowledge, special abilities and talents for a specific occupation. At the same time, general abilities remained unchanged, these include skills necessary for successful activity in general: cognitive style, work style, divergent thinking skills, etc. The third component—motivation to solve the problem—means the level and type of motivation.

Csikszentmihalyi proposed a model of creativity which focuses on the interaction of the individual, the subject of creativity, and the scope and field of the activity in general [Csikszentmihalyi, Wolfe, 2000]. In this theory only the style of activity develops regardless of the context, but all the abilities and skills required for high-level creativity are formed within the context of the activities and differ greatly from sphere to sphere.

Baer [1994] argues that the traits, characteristics and skills required for a high level of creativity in a certain area are so specific and unique that they cannot be transferred to other areas and can determine creativity only in a complementary field.

Recently an attempt was made to unite the two opposing points of view and create a model which considers creativity as a partially universal phenomenon. This model is called The Amusement Park Theoretical (APT) model of creativity, because the logic of its construction follows the logic of the organization of recreation parks [Baer, Kaufman, 2005]. According to this model, the concept of creativity is viewed at four levels of functioning. The first level includes the necessary basic features and capabilities, such as intelligence, motivation and suitable environmental factors. On the second level there are general areas of creativity—communication, empathy, applied creativity and mathematical/scientific abilities. The third level consists of a narrow range of activities, such as, for example, music, arts and crafts, poetry. The fourth level is the most narrowly specific and is characterized by narrow sphere, part of a wider one. An example would be writing historical novels in the literary field, or jazz performance in music. As a rule, these narrow areas correspond to the profession of a particular individual.

The move of creativity research towards specific or partially-specific models raised the question of finding a stable system which would differ in the quality requirements of a creative agent, so that they could be considered and analysed independently. A consensus has not been achieved so far. Different authors distinguish different areas of creativity. Gardner identified seven areas: musical, mathematical, verbal, symbolic, bodily kinaesthetic, spatial, interpersonal and internal. Later he added naturalistic creativity, which is the ability to categorize the environment and to draw conclusions about its properties [Gardner, 1993; Baer, 2011]. This classification is based on the corresponding classification of intelligence. Moral creativity and everyday creativity can also be added [Runco, 2004].

Kaufman and Baer [2004] identified the following areas: science, interpersonal communication, writing, art, communication and relationships with others, solutions to personal problems, mathematics, applied arts (woodwork, repairing things, construction, cooking, etc.) and various types of physical activity (such as dance, sports, etc.). It is important to emphasize that different cultures can value manifestations of creativity in various fields, for example, in Western culture mathematical and verbal creativity is valued, while in other cultures value naturalistic or spatial creativity.

A sociocultural approach to the study of creativity

Approaches studying environmental factors focus on finding physical and social conditions, including those culturally determined, which are the most favourable for the development and manifestation of creativity [Csikszentmihalyi, 1999; Simonton, 1984].

Rudowich [2003] notes that creativity and artistic expression in one form or another are culturally-universal phenomena although the impact of culture on creativity includes a number of historical, social and individual features. In particular, discrepancies about the nature of creativity were identified in cross-cultural studies of implicit theories of creativity in the West (USA, Europe) and the East (China, Japan, Korea). In the West, the usual attributes of creativity are novelty, originality, self-expression, while in the East they are understood as an interpretation of the existing tradition.

Research in the field of implicit theories of creativity in several cultures showed that, despite the fact that Japanese, Chinese and American students equally consider novelty as an important component in the evaluation of creative behaviour they do not regard other characteristics of creativity as necessary equally. For example, the presence of a certain goal is more important for American and Japanese students than for their Chinese peers [Paletz, Peng, 2008].

Runco and colleagues [Runco et al., 2002] also explored implicit theories of creativity in different cultures, focusing on the opinions of teachers and parents about the creative manifestations of children in the United States and India. The researchers found significant cross-cultural differences in the intellectual and behavioural components. The data suggest that implicit theories of creativity, and its manifestation, are influenced by cultural traditions and values.

Values as predictors of creativity

Schwartz defines values as reference points that exist outside a particular situation and which act as motives of individual and group behaviour in achieving a desired goal [Schwartz, 1992, 2005]. Due to their specific characteristics, individual and cultural values are universal predictors of behaviour: the values associated with the desired end states and forms of behaviour are determined by the choice and evaluation of behaviour and events, and are hierarchical in their relevance to humans [Schwartz, 2010].

Being, in fact, the core of culture, values are rightly considered as important determinants of creativity in the socio-cultural approach. This approach, which proposes the thesis of socio-cultural mediation of creative behaviour, empirically confirmed the influence of the social environment, social norms and values on the form and manifestation of creativity [Dollinger et al., 2010; Kharkurin, Motallebi, 2008; Shane, 1992; Lebedeva, Schmidt, 2011].

The results of contemporary studies show that creativity positively correlates with the values of Self-Direction, Universalism and Stimulation, and negatively with the values of Tradition, Conformity and Security. The closer the value is to Self-Direction, the more correlation curve increases and vice versa, the curve decreases with the value approaching Tradition [Kasof et al., 2007]. There was negative correlation between creativity and the value of Power [Dollinger et al., 2010].

Research goals:

- to define the domain-specific factor structure of the Creative Behaviour Inventory (CBI) and the contributions of domains to the general creativity factor
- to reveal the impact of values, gender and education on general creativity and creative behaviour in different domains across two Russian regions.

Research hypotheses

- There are regional differences in the values and frequencies of creative behaviour in different domains.
- Creative behaviour is influenced in different domains positively by the values of Openness to Change and negatively by the values of Conservation;
- The impact of values, gender and education on creative behaviour differs in different domains.

Method

Participants

The data were collected in a representative Russian survey in June-August 2012 in two Russian federal districts. Our respondents were adults, between the ages of 20 and 60, citizens of the Central and the North Caucasian federal districts of Russia. The total sample size was 2046, 1020 respondents from the Central and 1026 respondents from the North Caucasian federal districts. Age and gender characteristics of the samples are summarized in Table 1.

Table 1 Gender and age characteristics of the sample

Federal districts	N	Male		Female		Age				
		Mean	SD	Mean	SD	Mean	SD	Mode	Min	Max
Central	1020	88	8	32	2	38,84	2.33	2	8	0
North Caucasian	1026	89	8	38	2	36,64	2.37	2	8	0

Instruments

The main research method is the socio-psychological survey that used the following instruments constructed on the basis of Likert scales:

1. The modified questionnaire of CBI by Dollinger including 25 items, representing a description of the types of everyday creative behaviours in different areas.

The CBI, initially developed by Hocevar (1979), was one of the first self-reported measures of creative behaviour. Recently a shortened form was developed by Dollinger (2003), who eliminated many of the domains in favour of a single factor consisting of common behaviours, most of which come from art and crafts. The revised scale lacks domain subscores. The revised CBI has reported Cronbach's alphas of .88 [Dollinger, Burke, & Gump, 2007]; .89 [Dollinger, 2003; Dollinger, Clancy Dollinger, Centeno, 2005] and .92 [Silvia et al., 2011]. Regarding evidence for validity, the CBI correlates with many other markers of creativity [Dollinger et al., 2005; Silvia, Kimbrel, 2010]. Silvia et al. [2011] explore the CBI's factor structure, conducted an exploratory factor analysis in Mplus 6.1 using a maximum likelihood estimation with robust standard errors and an oblique geomin rotation. The results suggest that a one-factor model reasonably described the data [Silvia, Wigert, Reiter-Palmon, Kaufman, 2011].

The CBI has been translated into Russian at the HSE International Scientific Educational Laboratory using the procedure of double reverse translation with native English and Russian speakers.

In our study we modified and combined some original items and added some new items relevant to new types of organizational creativity. The modifications are presented in the Appendix A.

We asked respondents to choose from a list of creative activities those in which he or she has been actively involved during the past 12 months. When answered they used a four-point ordinal response scale: 1 *Never did this*, 2 *Did this once or twice*, 3 *3–5 times*, and 4 *More than 5 times*.

2. Values were measured with the new revised PVQ-R instrument developed by Schwartz et al. [2012]. The PVQ-R has been translated into Russian at the HSE International Scientific Educational Laboratory using the procedure of double reverse translation with native English and Russian speakers.

3. We asked respondents about their age and gender.

4. Education was measured by the question: What is the highest level of education you have completed? The answers offered varied from 'basic secondary education' to 'academic degree stage PhD'.

Procedure: A questionnaire in Russian was individually completed by respondents in person and in the presence of the interviewer. The average time for filling in the questionnaire was around 25 minutes.

Data processing: a t-test for independent samples with SPSS 19.00, CFA and structural equation modelling using SPSS AMOS version 19.00.

The results

Despite the previous research, using CBI and revealing a one-factor structure, we tried to reveal a domain-specific factor structure of CBI relying on two arguments:

1. The factor structure of the CBI has not received much attention in previous studies [Silvia et al., 2011];
2. The modification of the 15 original items and the addition of 7 new items to the original CBI might change the one-factor structure.

Nevertheless we suppose that there is also the one common factor of general creativity underlying domain-specific creativity. Analysing the content of the modified CBI, we proposed an existence of five different factors within one common factor. On the basis of these ideas and the item content, we constructed a model with 6 latent factors and 18 observed variables. Latent factors are presented by 1 general factor (Creativity) and 5 domains (spheres) of creative behaviour: *visual* (3 items), *craft* (3 items), *organizational creativity* (4 items), *performance* (5 items), *literature* (3 items). Six items were rejected because they did not belong to any of these domains (e.g. *Made a movie to show to other people. Made an architectural design or plan for a building, house, space/flat design, landscape.*)

Then we tested the model, presented in Figure 1 with CFA using SPSS AMOS version 19.00 with the combined sample (N=2046).

All the added error correlations presented in Figure 1 are strictly within the items of the same domains and are justified conceptually. Correlations of errors e1–e3 (.39) within the domain of *visual* means the closeness of the items devoted to public drawing (sketches, graffiti, posters, placards). Correlations e9–e10 (.18) within *organizational* means closeness in instrument (computer graphic), e11–e12 (.27) means closeness in developing new a product or procedure. Correlation in *performance* domain between e13–e14 (.39) means closeness between items devoted to choreography and correlation e17–e18 (.35) means closeness in music and singing on the street. Correlation in *literature* domain e19–e20 (.32) means closeness in creating new pieces in a pure genre of literature and some distance from item C 1.16 Planned and presented an original speech. All the connections added are presented at the model on Figure 1.

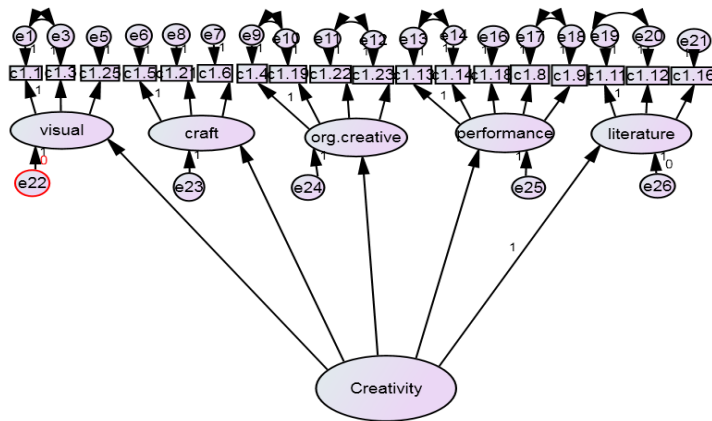


Figure 1. The model of creativity domains with the general creativity factor
 Characteristics of the model: $CMIN/DF = 9,702$; $CFI = .906$, $RMSEA = .060$, $PCLOSE = .000$.

The model characteristics fit to our data well enough to confirm the existence of 5 separate domains within the one factor of general creativity.

Then we tested the received scales, measuring five domains of creative behaviour for configural, metric, and scalar invariance in a multi-group simultaneous CFA with two regional samples. Characteristics of the model: $CMIN/DF = 6,601$; $CFI = .876$, $RMSEA = .053$, $PCLOSE = .01$. Full metric invariance was obtained ($\Delta CFI = .004$). Full scalar invariance was also obtained with $\Delta CFI = .009$.

Table 2 shows the standardized regression weights of the variables included in the creativity domains for the combined sample and for both regional samples.

Table 2. Standardized factor loadings of the variables (items) in creativity domains

Sphere of creative behaviour	No	Item	Combined sample	Central Russia	North Caucasus
Visual art	CBI1	Painted an original picture	.421***	.428**	.366**

				*	*
	CBI3	Made a sketches, draft paintings, graffiti	.611***	.591**	.533**
				*	*
	CBI25	Made original posters, placards (including for public meetings)	.680***	.676**	.682**
				*	*
Performa nce	CBI8	Performed musical instrument in a concert or on the street, excluding school or university course work	.609***	.650**	.527**
				*	*
	CBI9	Performed as a singer alone, in an ensemble or a chorus on stage or on the street (excluding school or university course work)	.640***	.713**	.612**
				*	*
	CBI13	Performed as a dancer alone or as part of an ensemble on stage or on the street (excluding school or university course work)	.607***	.587**	.665**
				*	*
	CBI14	Created or choreographed a dance for performance (excluding school or university course work)	.520***	.498**	.601**
				*	*
	CBI18	Participated as an actor in a play or other theatre performance or movie (not including crowd scenes), or as a 'life sculpture' excluding school or university course work)	.644***	.639**	.601**
				*	*
Literature	CBI11	Composed or wrote the words of a musical piece that was performed	.546***	.538**	.529**
				*	*
	CBI12	Wrote a short story, novel, poem, ballad, play or other piece of literature (excluding school or university course work)	.587***	.597**	.517**
				*	*
	CBI16	Planned and presented an original speech (excluding school or university course work)	.692***	.680**	.664**
				*	*
Craft	CBI5	Made a applied decorative craft (out of metal, plastic, glass, leather, ceramics, wood, beads, jewelry)	.726***	.755**	.565**
				*	*
	CBI6	Made a masquerade or festival costumes, designed and made item of clothes (sew or knit; crochet) embroider by your own drawing, etc.	.662***	.735**	.499**
				*	*
	CBI21	Prepared an original floral arrangement or a	.584***	.553**	.629**

		design of the plants & flowers in your garden		*	*
Organizational creativity	CBI4	Painted a picture, made collages, web-sites or something else using computer graphics	.570***	.544**	.608**
	CBI22	Developed something new for your work or organization (new procedures, rules, organizational arrangements) that was adopted	.616***	.649**	.498**
	CBI23	Developed a new product (a machine, computer hardware/software, etc.)	.522***	.557**	.498**
	CBI19	Drew cartoons or did the computer animation, and showed them to others	.381***	.323**	.555**

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

According to the data presented in Table 2 the variables that make up each domain have significant regression coefficients, which confirm the overall and cross-cultural validity of the selection of creativity domains using CFA.

Next we compared values priorities and manifestations of creative behaviours in different domains in the two regions. The mean comparison for the values was conducted in SPSS 21 (t-test for independent samples, the reliability coefficient Cronbach's alpha, and the effect size Cohen's d). In previous research full metric and scalar invariance is obtained for Openness to Change and Conservation values [Lebedeva, Schmidt, 2013].

Intergroup differences in two values-oppositions (Openness to Change and Conservation) for the samples from two regions are presented below (see table 3).

Table 3. Results of t-test for values—oppositions in two regions

Values – oppositions	Central federal district		North Caucasus		α	t	p	Cohen's d
	M	SD	M	SD				
	Openness to change	4.09	.44	3.96				
Conservation	4.08	.40	4.15	.41	.83	-3.97	<.001	-0.17

The results show that respondents from the Central federal district significantly prefer the values of Openness to Change and respondents from the North Caucasus region prefer the values of Conservation. Despite the high significance of value differences, Cohen's d coefficients are relatively low. It means that the regional differences in value priorities might depend on the sample sizes.

Next we calculated the regional differences in the level of expression of creative behaviour in different domains: *visual, craft, organizational creativity, literature, performance*. The results of the mean comparison are presented in Table 4.

Table4. Interregional differences in domain-specific creative behaviour frequencies

Domains of creative behavior	Central federal district		North Caucasus		A	t	p	Cohen's d
	M	SD	M	SD				
Visual art	1.34	.63	1.15	.40	.67	8.39	<.001	0.36
Craft	1.61	.82	1.28	.55	.69	10.70	<.001	0.47
Organizational creativity	1.29	.52	1.11	.30	.66	9.53	<.001	0.42
Literature	1.41	.68	1.17	.45	.70	9.24	<.001	0.42
Performance	1.28	.51	1.17	.43	.79	6.26	<.001	0.23

From Table 4, we conclude that the creative behaviours in all the domains are poorly expressed by representatives of both regions. Nevertheless all kinds of creative behaviour are more frequent for the Central federal district than for the North Caucasus. Cohen's d coefficients have modest values so we suggest that the regional differences might also depend on the sample sizes.

Next we tested the hypothesis about the influence of values, gender and level of education on creative behaviour in different domains using structural modelling in AMOS with the unified sample and with the two regional samples (bysimultaneous multi-group structural equation modelling). The model tested is presented on Figure 2.

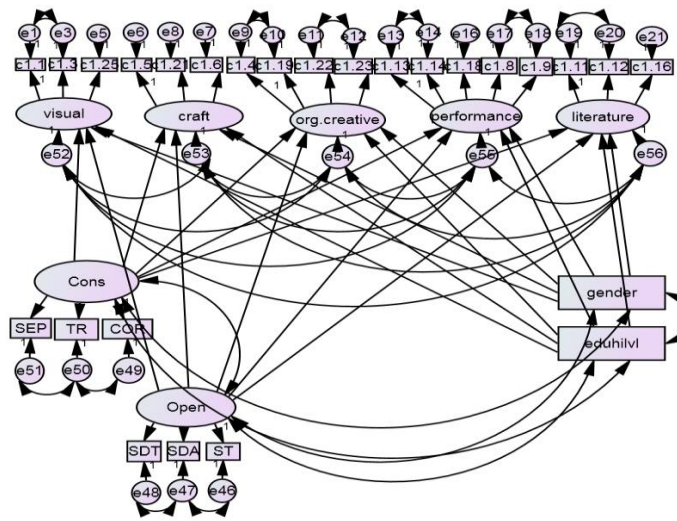


Figure 2. The model of testing the impact of values, gender and education on creativity domains

The characteristics of the models are:

Unified sample: CMIN/DF=5,422; CFI = ,929; RMSEA =.047; PCLOSE =,958;

Multigroup (Central Russia + North Caucasus): CMIN/DF=3,836; CFI = ,907; RMSEA =.038; PCLOSE =1,000.

The regression weights of the influence of gender and education on creative behaviour in different domains in the unified and two regional samples are presented in Table 5.

Table 5. Impact of gender and education on general and domain-specific creativity

Impact of gender and education on creativity	Unified sample	Central	North Caucasus
Visual art <-----Gender	.114***	.107*	.120**
Org.creativity<----Gender	-.092**	-.162***	-.039
Craft<-----Gender	.339***	.373***	.293***
Performance<-----Gender	.113***	.135**	.082*
Literature<-----Gender	.107***	.115*	.094*
Craft<-----Education	.049	.019	.066

Org.creativity<----Education	.166***	.217***	.100*
Performance<-----Education	-.015	-.052	.023
Visual art <-----Education	.116***	.093*	.153**
Literature<----- Education	.084**	.025	.154***

*- p<0.05, **- p<0.01 ***- p<0.001.

We can see that gender significantly and positively correlates with creative behaviour in *visual*, *craft*, *performance* and *literature* in both regions and negatively with *organizational creativity* in the Central region and in the unified sample. It means that women more frequently demonstrate creative behaviour in different domains and especially in *craft*, while for men *organizational* is a more typical and frequent type of creative behaviour, especially in Central Russia.

The impact of education on creative behaviour in different domains has domain-based and regional specifics. Education is more conducive for *organizational* and *visual* in both regions and for *literature* in North Caucasus only. Education does not correlate with creative behaviour in *craft* and *performance* in either region.

In the North Caucasus region people with higher education demonstrate creative behaviour in *visual* and *literature* more frequently than in the Central region. On the contrary, *organizational* is more typical for people with higher education in Central Russia.

The influence of values on different types of creative behaviour is presented in Table 5.

Table 5. Value influence on creative behaviour in different domains across samples

Values impact on creative behaviour in different domains	Unified sample	Central Russia	North Caucasus
Values of Openness to Change → Visual art	.447***	.592***	.246***
Values of Openness to Change → Craft	.248***	.331***	.119
Values of Openness to Change → Organizational creativity	.445***	.517***	.284***
Values of Openness to Change → Performance	.271***	.367***	.121*
Values of Openness to Change → Literature	.420***	.574***	.229***
Values of Conservation → Visual art	-.500***	-.345***	-.568***

Values of Conservation → Craft	-.222***	-.101	-.194**
Values of Conservation → Organizational creativity	-.447***	-.260***	-.477***
Values of Conservation → Performance	-.295***	-.250***	-.206***
Values of Conservation → Literature	-.471***	-.350***	-.465***

*- p<0.05, **- p<0.01 ***- p<0.001.

From Table 5 it follows that the values of Openness to Change positively and the values of Conservation negatively influence creative behaviour in all spheres. The values of Openness to Change and Conservation have a particularly significant impact on creative behaviour in *visual*, *organizational*, and *literature*; all coefficients in the unified sample are highly significant.

The results of the multi-group analysis of the two regional samples showed differences in the influence of values on the domains of creative behaviour in the two regions. For example, the values of Openness to Change has a more significant positive impact on creativity in all spheres in the Central region compared to the North Caucasus, especially in the fields of *craft* and *performance*. Conservation values, on the contrary, have a more significant negative impact on all spheres of creative behaviour in the North Caucasus compared to Central Russia. This difference is especially noticeable in *visual* and *organizational*.

Discussion

In our mostly exploratory study we have tried to find a multi-factor structure for the results using a modified Dollinger CBI method. We did a CFA with the data of a representative survey from two Russian federal districts. We defined 5 domains of creative behaviour: *visual*, *craft*, *organizational*, *performance*, and *literature* with the combined sample and then confirmed these domains with two culturally distant regions: Central Russia and North Caucasus, using simultaneous multi-group CFA with the data from two regional samples with AMOS 19.00.

This MG CFA enabled us to test the configural, metric, and scalar invariance for the five new scales—domains of creative behaviour. This test showed that we can compare the means of these domains in two regions. The test of invariance of values was done previously and presented in the report on the research project “Values and economic behavior: Examination of explanatory models in experiments and field studies, which has been implemented in 2013 under financial support of HSE Basic Research Program [Lebedeva, Schmidt, 2013].

We identified regional differences in values and domains of creative behaviour: respondents from the Central Russia prefer the values of Openness to Change to a greater extent while the respondents from the North Caucasus region prefer the values of Conservation.

Interregional comparison showed that all types of creative behaviour are more pronounced in the Central federal district, while all kinds of creative behaviour are not frequently expressed in either region.

Individual values and socio-demographic characteristics affect creative behaviour in different domains in both regions. Using structural modelling we revealed the influence of values on creative behaviour in different domains in the combined sample: Openness to Change positively, and Conservation negatively influence creative behaviour in all spheres. Particularly significant is the impact of Openness to Change and Conservation on creative behaviour in the fields of *visual*, *organizational* and *literature* in the unified sample.

The results of the multi-group analysis of two regional samples showed differences in the influence of values on the domains of creative behaviour in the two regions. Openness to Change has a more significant positive impact on creativity in all areas in Central Russia than in the North Caucasus, especially in the fields of *craft* and *performance*. Conservative values, on the contrary, have a more significant negative impact on all spheres of creative behaviour in the North Caucasus than in Central Russia. These regional differences in value impact are especially significant in the areas of *visual* and *organizational*.

We might explain these by the different importance of Openness to Change and Conservation values in Central Russia and the North Caucasus. The higher significance of Openness to Change values in Central Russia has a more pronounced positive effect on creativity in all areas in Central Russia. Conversely, the more significant values of Conservation in the North Caucasus has a more pronounced negative impact on creativity in all domains in the North Caucasus.

The level of education has a significant positive effect on general creativity in the unified sample and in the North Caucasus, but has virtually no effect in Central Russia. Gender (female) is positively associated with creative behaviour in *visual*, *craft*, *performance* and *literature* in both regions and negatively with *organizational* in the Central region and in the unified sample. This means that women more frequently demonstrate creative behaviour in different domains and especially in *craft*. Gender also demonstrates a more significant negative influence on *organizational* in Central Russia than in the North Caucasus. That means that for men *organizational* is a more typical and frequent type of creative behaviour, especially in Central Russia.

The level of education is also a significant predictor of the frequency of creative behaviours in different domains especially in the North Caucasus. The impact of education on creative behaviour in different domains has domain-based and regional specifics. Education is more conducive for *organizational* and *visual* in both regions and for *literature* in North

Caucasus only. Education does not correlate with creative behaviour in *craft* and *performance* in either region. In the North Caucasus region people with higher education demonstrate creative behaviour in *visual* and *literature* more frequently than in the Central region. In contrast *organizational* is more typical for people with higher education in Central Russia than in the North Caucasus.

The novelty of this study is that it identified different domains of creativity and at the same time confirmed the presence of the factor of general Creativity. It confirms the cross-cultural validity of five-factor model of creative behaviour for two culturally different Russian regions and the different impacts of education, gender and values on different domains of creative behaviour.

This study has its limitations also. We have only self-reported methods measuring creative behaviour which is unsatisfactory for the conclusion about creative behaviour in different domains. The set of domains is also not representative and is limited by the items included in Dollinger's CBI questionnaire.

Conclusion

We obtained a five factor structure using the modified version of Dollinger's CBI, presenting five domains of creative behaviour: *visual*, *craft*, *performance*, *literature* and *organizational* on the basis of general creativity. The values of Openness to Change are more conducive for creativity in all spheres and in both regions whereas the values of Conservation are more preventive for all types of creativity in all socio-cultural contexts. Higher education and gender also contribute to the frequency of creative behaviour. The impacts of gender and education on creative behaviour in different domains differ: Craft is a 'female' domain whereas *organizational* is a 'male' one; higher education promotes *visual* and *organizational* in both regions and *literature* in the North Caucasian federal district. There are regional differences in creativity and their predictors in different regions of Russia: the values of Conservation prevails in North Caucasus, whereas the values of Openness to Change and the frequency of creative behaviour in all domains are more widespread in Central Russia.

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Appendix A.

Modification of CBI shortened version (Dollinger et al., 2003)

Modified items:

- Made a sketches, draft paintings, graffiti (added `graphic drawings, graffiti`);
- Drew cartoons or did the computer animation, and showed them to others (added `did the computer animation, and showed them to others`);
- Prepared an original floral arrangement, landscape design, garden design (added `landscape design, garden design`).

- Composed or wrote the words of a musical piece that was performed (added `composed`, `that was performed`, `words` instead of `lyrics`, `musical piece` instead of `song`)

6 items related to the creativity in crafts (such as: made a ceramic craft, made a craft out of metal, etc.) were combined into a single item - `Made a applied decorative craft (out of metal, plastic, glass, leather, ceramics, wood, beads, jewelry)`

3 items describing the literary composition were also merged into one - `Wrote a short story, novel, poem, ballad, play or other piece of literature (excluding school or university course work)`.

2 items about costume design (`Designed and made a piece of clothing`, `Designed and made a costume`) were joined into one - `Made a masquerade or festival costumes, designed and made item of clothes (sew or knit; crochet) embroider by your own drawing, etc.`

Added (new) items:

- Developed something new for your work or organization (new procedures, rules, organizational arrangements) that was adopted,
- Developed a new product (a machine, computer hardware/software, etc.),
- Painted a picture, made collages, web-sites or something else using computer graphics,
- Performed as a dancer alone or as part of an ensemble on stage or on the street (excluding school or university course work),
- Performed as a singer alone, in an ensemble or a chorus on stage or on the street (excluding school or university course work),
- Made original posters, placards (including for public meetings),
- Performed musical instrument in a concert or on the street, excluding school or university course work,
- Created or choreographed a dance for performance (excluding school or university course work),
- Participated as an actor in a play or other theatre performance or movie (not including crowd scenes), or as a 'life sculpture' excluding school or university course work)

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