

# WP5/10 SEARCH WORKING PAPER

## Implicit theories of innovativeness: cross-cultural analysis

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## **Abstract**

This study revealed and examined cultural differences in values, implicit theories of innovativeness and attitudes to innovation across three ethnocultural groups: Russians, representatives of the peoples of North Caucasus (Ingush and Chechens), and Tuvins (N = 804). Individual theories of innovativeness appeared to be more pronounced in Russians; whereas social theories of innovativeness are more discernible in the respondents from North Caucasus and Tuva. Using structural equation modeling was identified a culturally universal model of values' effects – direct and mediated by implicit theories of innovativeness – on attitudes to innovation. The study demonstrates how the direct negative impact of Conservation values on positive attitudes to innovation is transformed into positive impact, promoting the acceptance of innovations, through the mediating role of implicit theories of innovativeness. The current research study sheds light on the important mediating role of implicit theories of innovativeness in the impact of individual values on attitudes to innovation in different cultures.

## **Key words:**

culture, values, attitudes, creativity, innovations, implicit theories, innovativeness

## **JEL Classification:**

A13.

## 1. Introduction

The economic growth and prosperity of any country in modern times depends not so much on favorable geographical location and availability of natural resources, but on the concentration and degree of development of intellectual potential (Innovative Development..., 2008). Currently, Russia continues to maintain low level of innovative activity (Innovative Development of ..., 2008), despite the fact that the intellectual and creative potential of Russian youth is quite high (Lebedev, 2008, 2009; Kharkurin & Motallebi, 2008).

Modern scientific literature devoted to the study of creativity and innovativeness increasingly raises the question of similarities and differences between these concepts. Creativity is both a cognitive and a social process, boosted by conscious or unconscious ability of generating ideas, concepts and associations [Lazzarato, 1996]. Innovativeness is the successful exploitation of new ideas; it is the result of a creative process in terms of "profitability" which involves the generation and implementation of new products, services, procedures and processes that are desirable and viable [Serrat, 2009]. Often, creativity is viewed an essential building block for innovativeness – innovativeness implies creativity, but creativity itself is not sufficient for a sustainable capacity for innovativeness [Styhre & Börjesson, 2006 West, 2004]. Creativity precedes innovations; it is not born merely in a person's mind of but in interaction with social context. There is a considerable amount of evidence indicating that culture can stimulate or frustrate creativity. Arieti [1976], examining the impact of culture on creativity, suggested that potential creativity is more widespread than factual creativity. Some cultures promote creativity much more than others, and he called these "creativogenic cultures".

For many years, psychologists in the West and just ordinary people attributed creativity to personal rather than social or cultural factors. Therefore, studies of creativity have focused on the study of personality traits [Barron & Harrington, 1981; Helsen, 1996], cognitive processes [Sternberg, 1988] and the life path of creative people [Gardner, 1993]. In Western psychology, creativity is defined most commonly as a quality attributed to a person or a process that can generate novel, appropriate, non-algorithmic solution to a problem [Mayer, 1999].

For over 30 years, such an individualistic western approach to the study of creativity hampered researchers' understanding of the social nature of creative processes. Numerous studies in Chinese and Korean cultures (Chan & Chan, 1999; Rudowicz & Yue, 2000, etc.) and cultures of Islamic countries and Turkey (Khaleefa et al., 1997) have demonstrated that there is no universal understanding of creativity. For a better understanding of creativity, it should be studied in the context of interaction of individual and socio-cultural variables of creativity.

Research on innovation pays much attention to analyzing its procedural and resulting components; however, studying the characteristics of subjects of innovative activity, which are related to their ability to implement and evaluate these ideas, is not less important. These characteristics are denoted by the term "innovativeness". Innovativeness by itself can be defined as ability to adapt new ideas and implement them in practice, to develop new products [Styhre & Börjesson, 2006; Rogers, 2003; West, 1997]. Some authors view innovativeness as the ability of a subject to draw ideas from outside and introduce them into the current system, as well as the ability to effectively present these ideas to the public [Grewal, Mehta, and Kardes, 2000; Larsen and Wetherbe, 1999]. Thus, innovation is the successful application of emerging creative ideas, while innovativeness reflects the ability to evaluate and implement these ideas. Theories and concepts of creativity can be described as explicit (external, explicit) and implicit (internal, implicit). Explicit theories of creativity are the constructions of psychologists or social scientists drawing on theoretical hypotheses that can be tested empirically (Sternberg, 1985). Implicit theories derive from individual belief systems rooted in the minds of members of a particular culture; implicit theories must be discovered rather than invented. People use their implicit theories as psychological bases for making evaluations of their own and others' behavior; implicit theories can serve as bases for education and skills training.

In cross-cultural studies of implicit theories of creativity in the West (the USA, Europe) and East (China, Japan, Korea), there as revealed a clear mismatch – in the West the essential attributes of creativity and innovation are creativity, novelty, originality, focus on self-expression, whereas in the East, any innovation is regarded as an interpretation of existing tradition. Empirical studies of implicit concepts of creativity among teachers in the U.S. and China revealed both similarities and differences which consisted primarily in the fact that such qualities as “aesthetic taste” and “humor” are consistently absent in the Chinese perception of a creative person, whereas such characteristics as “honesty”, “respect for elders”, “responsibility” and focus on collectivism are perceived as indicative of creativity (Rudowicz & Yue, 2000). The results of a cross-cultural study of implicit concepts of creativity among teachers and parents in India and the U.S. with the use of ACL (Adjective Check List) Runco et al., 1993) revealed that personality traits (individualism, independence, etc.) associated with creativity are rated as undesirable by teachers and parents, i.e., in implicit culture-specific concepts of creativity dominate culturally approved personality traits (Runco & Johnson, 2002).

In Russia, studies examining teachers' evaluation of the concept of “good student” showed that teachers rated as the most desirable such qualities as “discipline” and “perseverance”; qualities such as “intellectual curiosity” and “independence” were regarded as desirable; whereas “initiative”, “shrewdness”, “audacity” were viewed as undesirable (Efimenko, Hwang, 2006). Clearly, creativity and innovativeness associate stronger with independence and initiative than with discipline and perseverance; so the question is: Do Russian socialization practices contribute to nurturing in children qualities

necessary for innovation? Since comparative studies of implicit theories of creativity and innovativeness in the multicultural Russian society have not been conducted, we consider them relevant and timely.

Attitudes to innovation are largely conditioned by cultural values. In 2008 -2009, Lebedeva carried out an empirical study on student samples in Russia, Canada and China, which revealed cross-cultural and gender differences in value priorities of students of the three countries (Lebedev, 2008, 2009). The results of correlation and multiple regression analyzes of the relationship between values and innovative attitudes allowed to confirm the hypothesis that values of Openness to Change promote positive attitudes to innovations, whereas Conservation values serve as impediments. These results are consistent with those of overseas studies (Dollinger et al., 2007) and are indicative of the near-universal nature of this relationship.

Review of theoretical and empirical studies on implicit theories of creativity [Seng, Keung & Cheng, 2008; Runco, Johnson, 2002] as well as investigations of the impact of culture on creativity and innovation [Chan & Chan, 1999; Rudowicz & Yue, 2000; Lim and Plucker, 2001 Amabile, 1996, Runco, 2004, West and Farr, 1990, Leung & Morris, 2011] allowed us to propose **the general hypothesis** of our study: values, implicit theories of innovativeness and their impact on attitudes to innovation vary across cultures. **Specific hypothesis:**

1. The content of implicit theories of innovativeness varies between Russians, the peoples of North Caucasus and Tuvins – “individual” theories of innovativeness are more important for Russians, while “social” theories of innovativeness are more important for the peoples of North Caucasus and Tuvins.
2. Individual values vary across the three different cultures – Openness to Change values are more significant for Russians, whereas Conservation values are of greater importance for Tuvins and the representatives of the North Caucasus.
3. Values of individuals affect their attitude to innovation both directly and through implicit theories of innovativeness, and this effect varies across different cultures.

**Study objectives:**

- 1) to identify and compare individual values and implicit theories of innovativeness in the three ethnocultural groups;
- 2) to identify values’ direct and indirect effects – mediated by implicit theories of innovativeness – on attitudes to innovation in a cross-cultural comparison.

**Object of the study:** implicit theories of innovativeness

**Subject of the study:** effect of values on attitudes to innovation, mediated by implicit theories of innovativeness.

## 2. METHODOLOGY

The study *participants* were university students and secondary school teachers from three ethnocultural groups: Russians (Moscow, Novokuznetsk), peoples of the North Caucasus (Ingush, Chechens - Southern Federal District), Tuvins (Tuva Republic). The total sample size was 804 people (see Table 1).

**Table 1 .** The characteristics of the study sample

Group	Number of respondents	Sex		Age (median)
		male, number, %	female, number, %	
Russians	390	98 (22.3%)	292(77.7%)	M=30,2 Me -21 (min -17, max-63)
Peoples of the North Caucasus (Ingush, Chechens)	194	34 (18%)	160 (82%)	M=31 Me -28 (min -17, max-62)
Tuvins	217	31(14%)	186(86%)	M=29,3 Me -24 (min -17, max-69)
Total	801	163(19%)	638 (81%)	M=30,1 Me -23 (min -17, max-69)

Students and teachers were intentionally chosen as respondents since secondary school teachers are the ones who translate cultural values and concepts to future generations; they are actively involved in socio-cultural socialization of children and young people, their ideas about creativity and innovation affect the development of creative abilities and the formation of attitudes towards innovation in their students. University students are the “product” of the Russian school; their implicit concepts of creativity and innovation influence their attitudes and behavior in relation to innovation, consequently, the formation of socio-psychological climate in which an innovative economy is to be developed.

*Procedure.* A questionnaire in Russian was administered to respondents to be completed individually or in small groups (5-7 people) in person and in the presence of interviewer. The survey was conducted in educational institutions (universities and secondary schools); the procedure was the same. The average time for filling in the questionnaire was 15-20 minutes.

*Measures of the study.* A socio-psychological survey with the following instruments:

1. A modified ACL (Adjective Check List) (Runco et al., 1993) for measuring traits necessary for an innovator. The measure contained 30 adjectives that a person checks as potential qualities of an innovator. The respondents were asked to rate from 1 (min) to 7 (max) the desirability of each of these personality traits for an innovator, an inventor, and a creative person (trying to choose different numbers).
2. A measure developed by the author – *Innovative Personality Traits* [4] – which consisted of 12 statements. The respondents were asked to assess how much they resembled the person whose personality traits were described using a five-point scale ranging from 1 - ‘absolutely not like me’ to 5 - ‘absolutely like me’. The measure in its original version contains 3 main scales identified through exploratory factor analysis with Varimax rotated principal components analysis. Scales of the measurements: a) “Creativity” (4 items, for example: ‘He (she) likes to do things their own peculiar way’; Cronbach  $\alpha = 0.80$ ); b) “Risk for the Sake of Success” (4 items, for example: ‘He (she) is ready to take risks for the sake of achievements’; Cronbach  $\alpha = 0.72$ ); c) “Focus on Future” (4 items, for example: ‘In his (her) opinion, today's losses are not necessarily bad for the future’; Cronbach  $\alpha = 0.74$ ). The average value of the above four scales was the integral “Person’s innovativeness index” (Cronbach  $\alpha = 0.79$  - Russians, 0.85 - Caucasians, 0.80 - Tuvins). The testing and adaptation of the measure was carried out in a series of cross-cultural studies (N = 4573) in Russia (2007-2011), Canada (2008), and China (2009).
3. Schwartz value survey (SVS57) translated into Russian and adapted in Russia (Lebedeva, 2001). For the analysis we used the key for the 10 individual value blocks, which were then summed into value-oppositions: Openness to Change - Conservation and Self-Enhancement - Self-Transcendence.

Main variables:

Independent variables:

Innovator characteristics (based on ACL): *energetic, active, curious, ambitious, adventurous, self-confident, highly motivated, enthusiastic, optimistic, inspirational, open-minded, intelligent, logical, intuition, imaginative, risk inclination, resourceful, clear thinking, leadership, respect for authority, independent, conformity, individualistic, perseverance, daring, honest, trust toward people, humorous, obedient, artistic, aesthetic taste (measured on a seven-point scale from 1 (min) to 7 (max)).*

Individual implicit theories of innovativeness were identified using exploratory and confirmatory factor analysis (Lebedev, 2012) taking the arithmetic mean of the following innovator qualities: *open-mindedness, creativity, enthusiasm, risk inclination, imagination, high motivation, optimism.*

Social implicit theories of innovativeness were identified using exploratory and confirmatory factor analysis (Lebedev, 2012) taking the arithmetic mean of the following innovator qualities: *respect for authority, honesty, trust toward people.*

Individual value-oppositions were calculated in accordance with the key: Openness to Change, Conservation, Self-Enhancement, Self-Transcendence.

The dependent variables:

The Index of innovativeness (attitudes to innovation) was determined based on the measure “Innovative qualities of a person” developed by Lebedeva and Tatarko using confirmatory factor analysis and was considered as the arithmetic mean of the following statements:

He/she is ready to take risks for the sake of achievement.

He/she likes to do things their own peculiar way.

Diversity in life is important to him/her

Meeting the unknown and new does not scare him/her.

He/she is a creative person, always striving to create and invent something new.

Love for the study of the new and curiosity are characteristic of him/her.

The data was processed using SPSS (version 19). To determine the significance of differences we applied the Kolmogorov-Smirnov test for independent samples and calculated the effect-size (Cohen's d). To determine the relationship between the variables we used structural modeling of latent variables through SPSS AMOS (version 19).

### **3.RESULTS OF THE STUDY**

#### **3.1. Cross-cultural similarities and differences between implicit theories of innovativeness, values and attitudes to innovation**

Among the qualities necessary for an innovator, we revealed both similarities and significant differences between Russians, peoples of the North Caucasus and Tuvins. In particular, cross-cultural similarities in innovator's priority qualities manifest in the fact that in all three groups there are present such qualities as *intelligence, logic, creativity, self-confidence and activeness*. The application of Kolmogorov-Smirnov test for independent samples revealed significant differences in the qualities of innovators between Russians and the people of the North Caucasus: Russians viewed as more important such qualities as *curiosity* ( $Z = 2,41$  \*\*\*), *high motivation* ( $Z = 1,36$  \*), *clear thinking* ( $Z = 1,69$  \*\*); whereas Caucasians valued *conformity* ( $Z = 1,59$  \*), *honesty* ( $Z = 2,77$  \*\*\*), *trust toward people* ( $Z = 2,05$  \* \*\*), and *obedience* ( $Z = 3,00$  \*\*\*). It is easy to note that the main differences relate to individual (more important for Russians) and social (more important for the peoples of the Caucasus) personality traits of an innovator.

Comparison of innovator's qualities in Russians and Tuvins revealed the following significant differences: Russians regard as more important such qualities as *ambition* ( $Z = 1,70$  \*), *enthusiasm* ( $Z = 1,58$  \*), *intuition* ( $Z = 1,69$  \*), *imagination* ( $Z = 1,36$  \*), *risk inclination* ( $Z = 1,69$  \*), *creativity* ( $Z = 1,44$  \*), *perseverance* ( $Z = 1,82$  \*\*), and *individualism* ( $Z = 1,59$  \*); whereas Tuvins value *respect for authority* ( $Z = 1,58$  \*), *conformity* ( $Z = 1,51$  \*), *honesty* ( $Z = 2,60$  \*\*\*), *trust toward people* ( $Z = 1,96$  \*\*\*



), and *obedience* ( $Z = 3,68^{***}$ ). Again, as is the case with peoples of the Caucasus, Russians give higher value to individual qualities of innovators, while Tuvins cherish social qualities.

The intergroup comparison of innovator’s quality preferences in the North Caucasian respondents and Tuvins showed that the representatives of the peoples of the North Caucasus more than Tuvins value innovators’ *risk inclination* ( $Z = 1,43^*$ ), *clear thinking* ( $Z = 1,59^*$ ), *independence* ( $Z = 1,86^{**}$ ), *individualism* ( $Z = 1,94^{***}$ ), i.e., individual qualities of an innovator.

Through exploratory and confirmatory analysis there were identified two blocks of implicit concepts of innovativeness – “individual”: *open-mindedness, creativity, enthusiasm, risk inclination, imagination, high motivation, optimism* and “social”: *respect for authority, honesty, trust toward people* (for more details see Lebedeva, 2012). Next, we conducted a cross-cultural comparison of the identified implicit theories of innovativeness using Kolmogorov-Smirnov test (see Tables 2-4)

**Table 2.** Cross-cultural differences in implicit theories of innovativeness (Russians - Representatives of the Peoples of the North Caucasus)

Group	Russians			Peoples of the North Caucasus			Z-factor
	Me	range	Min-max	Me	range	Min-max	
Individual ITI	5,50	5,17	1,83-7	5,33	4	3-7	1,119
Social ITI	3,75	6,25	,75-7	4,5	5,75	1,25-7	1,957**

\*\*\* -  $p < 0,001$ , \*\* -  $p < 0,01$ , \* -  $p < 0,05$

ITI – Implicit theories of innovativeness

The Kolmogorov-Smirnov Z revealed significant differences in social theories of innovativeness between Russians and representatives of peoples of North Caucasus, namely, Caucasian respondents believe social qualities – respect for authority, honesty, trust to people – are more necessary for an innovator than it is viewed by Russian respondents.

**Table 3.** Cross-cultural differences in implicit theories of innovativeness (Russians - Tuvins)

Group	Russians			Tuvins			Z-factor
	Me	range	Min-max	Me	range	Min-max	
Individual ITI	5,50	5,17	1,83-7	5,17	5	2,00-7,00	2,196***
Social ITI	3,75	6,25	,75-7	4,75	6	1,00-7,00	2,975***

\*\*\* -  $p < 0,001$ , \*\* -  $p < 0,01$ , \* -  $p < 0,05$

ITI – Implicit theories of innovativeness

According to Table 3, significant differences were observed in individual (more important for Russians) and social theories of innovativeness (more important for Tuvins).

**Table 4.** Cross-cultural differences in implicit theories of innovativeness (Representatives of the Peoples of the North Caucasus - Tuvins)

Group	Caucasians			Tuvans			Z-factor
	Me	range	Min-max	Me	range	Min-max	
Implicit theories of innovativeness							
Individual ITI	5,33	4	3-7	5,17	5	2,00-7,00	1,063
Social ITI	4,5	5,75	1,25-7	4,75	6	1,00-7,00	,814

\*\*\* -  $p < 0,001$ , \*\* -  $p < 0,01$ , \* -  $p < 0,05$

ITI – Implicit theories of innovativeness

The data in Table 4 demonstrate that Caucasians give higher priority to the individual qualities of an innovator, whereas Tuvins rate highly the social qualities of an innovator.

Next, we compared values and attitudes to innovation in the three groups of respondents (Table 5-7).

**Table 5.** Intergroup differences in values (Russians - Caucasian peoples)

Groups	Russians		Peoples of North Caucasus		Cohen's D
	M	SD	M	SD	
Conservation	3,94***	,57	4,42***	,46	-.85
Openness to Change	3,78***	,83	3,35***	,85	.48
Self-Transcendence	4,14*	,48	4,24*	,46	
Self-Achievement	3,49***	,71	3,26***	,71	

$p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ ;

We see significant differences in values between Russians and representatives of the peoples of Caucasus: Conservation values (Security, Conformity, Tradition) are more important for Caucasians, and these differences are not random as evidenced by the size of the effect size. Close to this threshold is the difference in values of Openness to change which are more significant for Russians.

**Table 6.** Intergroup differences in values (Russians - Tuvins)

Groups	Russians		Tuvins		Cohen's d
	M	SD	M	SD	
Conservation	3,94***	,57	4,13***	,39	-.39
Openness to Change	3,78***	,83	3,55***	,63	.36
Self-Transcendence	4,14	,48	4,19	,53	

Self-Achievement 3,49\*\* ,71 3,65\*\* ,61

p<0.05; \*\* p<0.01; \*\*\* p<0.001;

Tuvins, in comparison with Russians, rate higher values of Conservation and Self-Achievement; whereas Russians prefer values of Openness to Change which are more pronounced in Russians.

**Table 7.** Intergroup differences in values (the peoples of the Caucasus - Tuvins)

Groups	Peoples of NorthTuvins		Caucasus		
Values	M	SD	M	SD	Cohen's d
Conservation	4,42***	,46	4,13***	,39	.66
Openness to Change	3,35**	,85	3,55**	,63	
Self-Transcendence	4,24	,46	4,19	,53	
Self-Achievement	3,26***	,71	3,65**	,61	

p<0.05; \*\* p<0.01; \*\*\* p<0.001;

Comparing the values of representatives of the North Caucasus and Tuvins revealed significant and non-random differences in the values of Conservation (more important for the peoples of Caucasus).

Next, we conducted a cross-cultural comparison of the Index of Innovativeness in the three cultural groups using the Kolmogorov-Smirnov test, which showed no significant cross-cultural differences in the Index of Innovativeness.

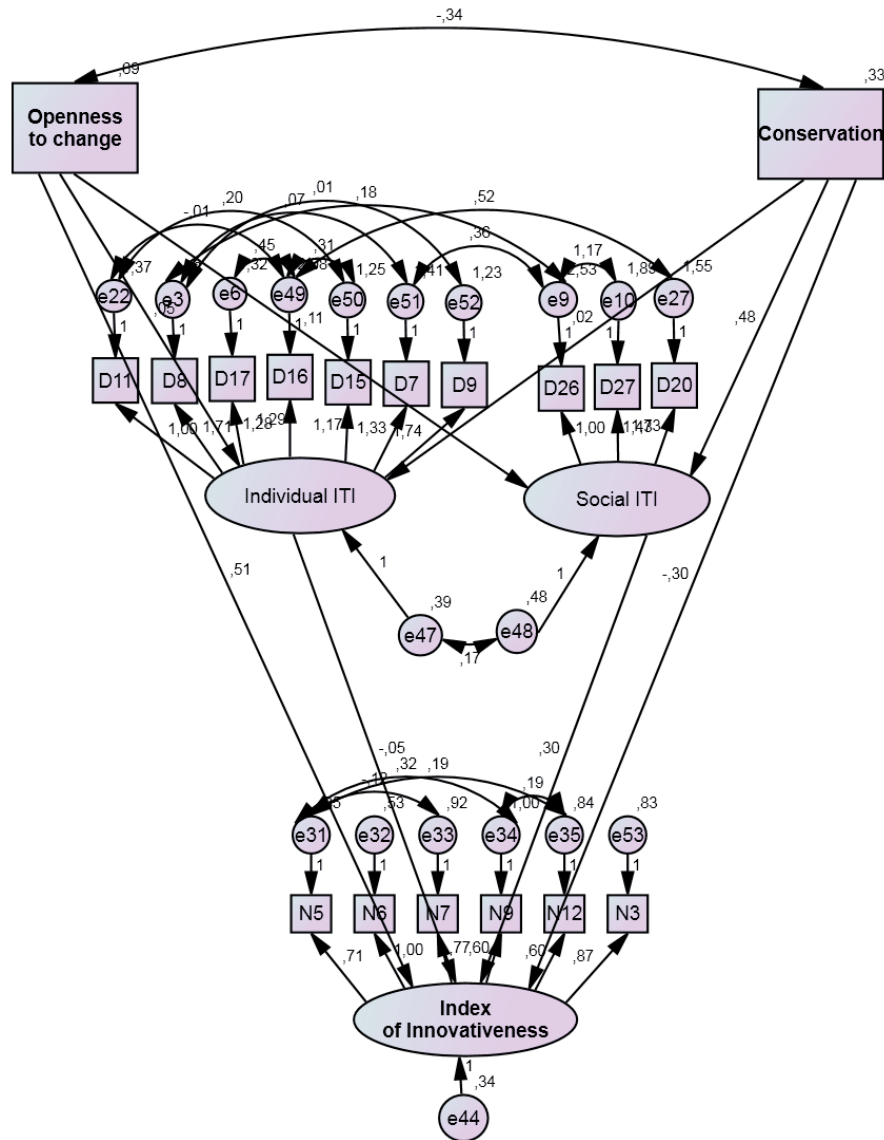
**1.1.2. An empirical model of the effect of values on attitudes to innovation through implicit theories of innovativeness**

In the second phase of our study, through the use of structural equation modeling, we verified the hypothesis about the mediating role of implicit theories of innovativeness in the effect of values on attitudes to innovation. The analysis included three groups of variables:

1. Value - oppositions “Openness to Change” and “Conservation” since according to our previous study (Lebedeva, 2008, 2009, 2012) these value-oppositions affect attitude to innovation.
2. Implicit theories of innovativeness (Individual and Social).
3. The scale of Index of innovativeness, tested earlier with confirmatory factor analysis [Lebedeva, 2012].

Two competing models of full and partial mediation were tested. The results of the analysis have shown that the model of partial mediation has better fit (CFI = .954 against CFI = .906 for the model of full mediation). The model of partial mediation is shown in the Fig. 1.

**Figure 1.** Model of the effect of values and implicit theories of innovativeness on attitudes to innovation (“Index of Innovativeness”) (CMIN/DF = 1.46, CFI = .95, RMSEA = .03, PCLOSE = 1.00)



The results of intergroup analysis confirmed the metric invariance of the model across the three cultural groups (Russian, Caucasians, and Tuvins) ( $P = .090$ ,  $CFI = .951$ ), which allows us to compare the regression coefficients for these three groups of respondents. Table 5 shows the standardized regression coefficients for significant relationships.

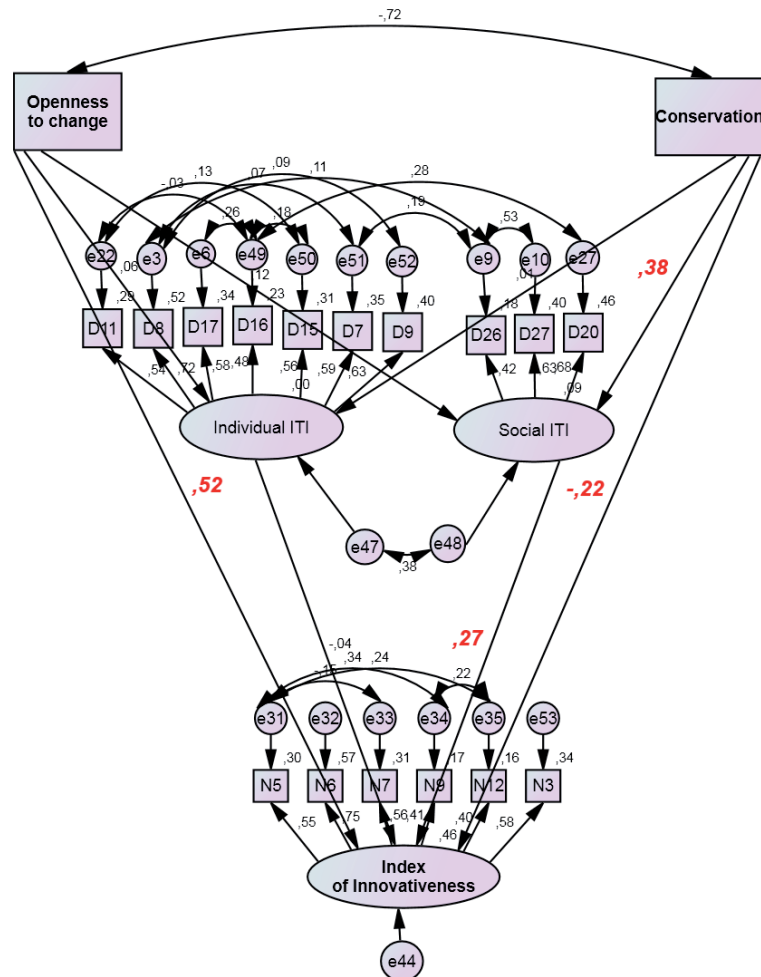
**Table 5 - Standardized regression coefficients for the three ethnic groups**

	Russians	Caucasians	Tuvins
Conservation values □ Social ITI	.38***	.23	.16**
Conservation values □ Individual ITI	.01	-.13	-.23***
Conservation values □ Index of Innovativeness	-.22**	-.19	-.19

Openness to Change values □ Index of Innovativeness	.52***	.19	.31***
Individual ITI □ Index of Innovativeness	-.04	.22	.28**
Social ITI □ Index of Innovativeness	.27***	.03	-.08

We see significant correlations between values, implicit theories of innovativeness and attitudes to innovation in groups of Russians and Tuvins and their absence in the group of representatives of the peoples of the North Caucasus. Below, in Figures 2-4 the effects of values and ITI on Index of Innovativeness for each of three ethnic groups are given. All significant effects are shown in red.

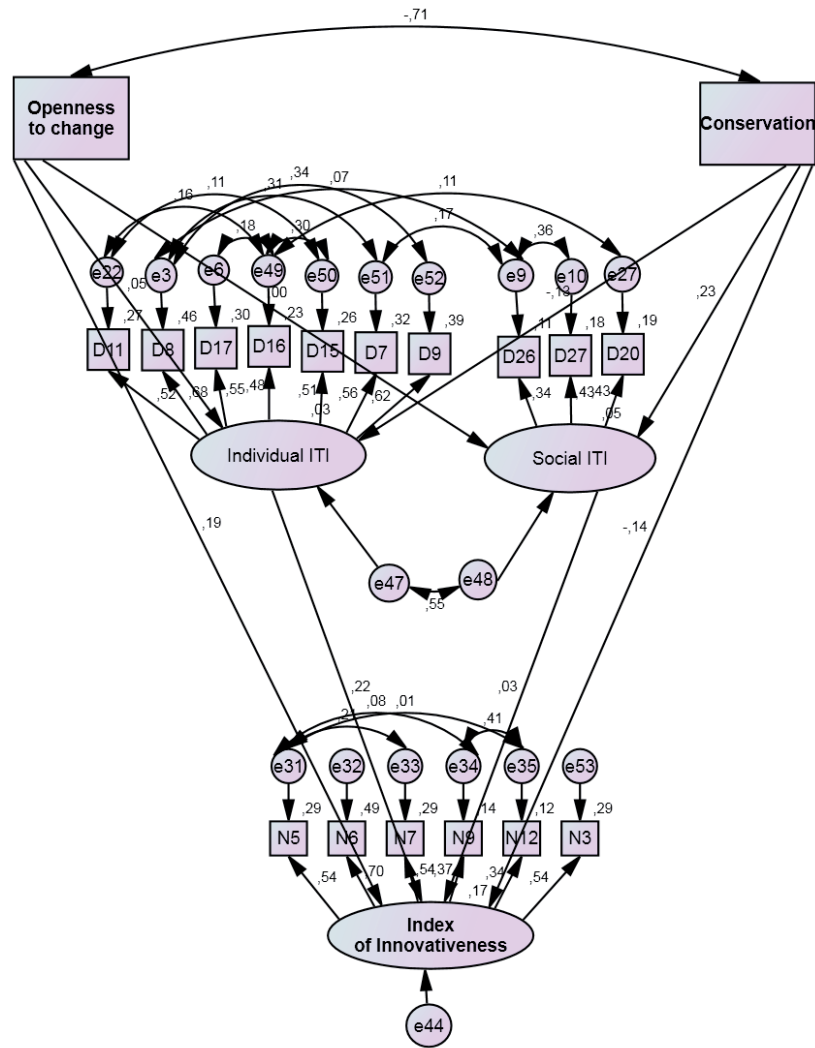
**Figure 2.** Model of individual values’ effects (direct and mediated by implicit theories of innovativeness) on attitudes to innovation (the Russian sample).



We see that the values of Openness to Change in Russians directly affect the Index of innovativeness, and the effect is significant and positive. Conservation values directly and negatively impact the Index of innovativeness. In doing so they have a positive influence on social ITI, which in their turn also have a positive impact on the Index of innovativeness. This model revealed the mediating role of social values in

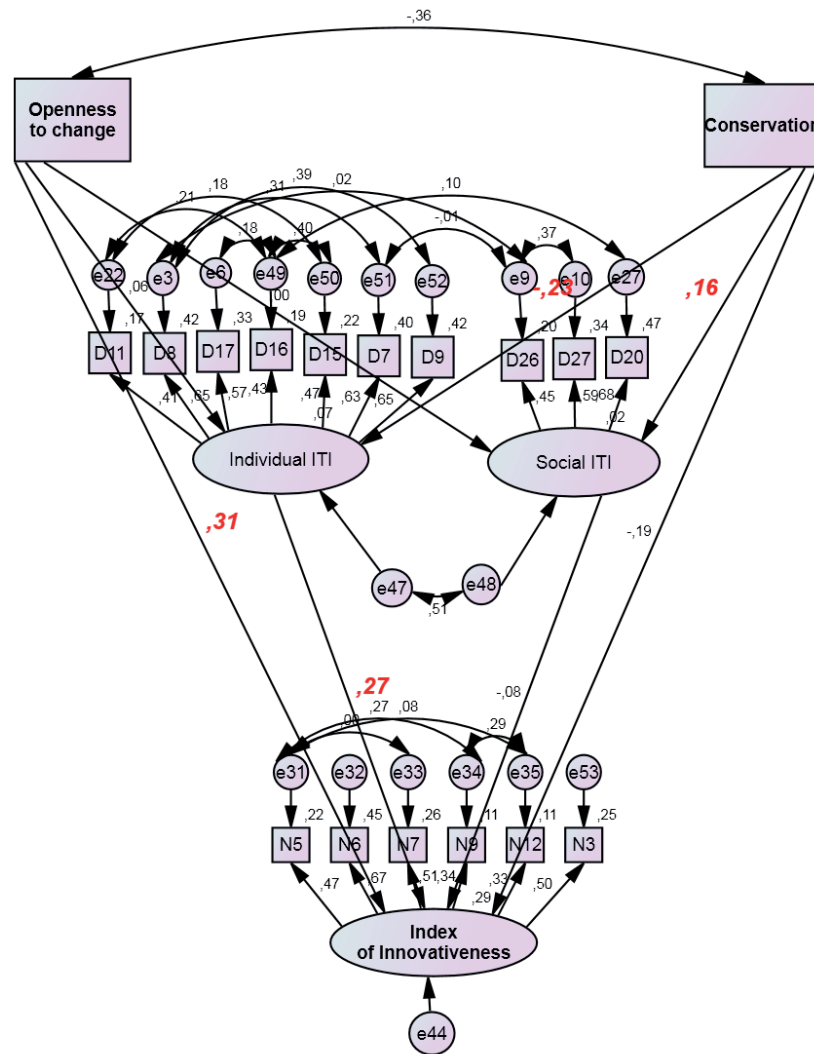
the impact of ITI on attitudes toward innovation. It is important to note that the direct and mediated by implicit theories of innovation impact of values on attitudes to innovation has a multidirectional nature: a negative direct effect and a positive effect mediated by social ITI.

**Figure 3.** Model of individual values' effects (direct and mediated by implicit theories of innovativeness) on attitudes to innovation (the Caucasian sample).



According to calculations, there were not revealed any significant relationships between individual values, implicit theories of innovation and attitudes to innovation in the sample of respondents from the North Caucasus; this is also supported by the data in Table 5.

**Figure 4.** Model of individual values' effects (direct and mediated by implicit theories of innovativeness) on attitudes to innovation (the Tuvin sample).



In Tuvins, the Openness to Change values positively and directly affect the attitude to innovations; Conservation values have a negative impact on Individual ITI, which in turn positively affect the Index of innovativeness. Conservation values also positively affect the social ITI which have no effect on attitudes to innovation.

#### 4.DISCUSSION OF RESULTS

Thus, our study revealed cross-cultural similarities and differences in the qualities necessary for an innovator as viewed by Russians, respondents from the North Caucasus and Tuvins. The two blocks of implicit theories of innovativeness identified earlier with exploratory and confirmatory analyses – “individual” (*open-mindedness, creativity, enthusiasm, risk inclination, imagination, high motivation, optimism*) and “social” (*respect for authority, honesty, trust toward people* (for more details see Lebedeva, 2012) – differ in their significance in different cultures: for Russians Individual implicit theories of innovativeness are more significant, whereas the peoples of the Caucasus and Tuvins consider significant the social implicit theories of innovativeness. This is consistent with the research results of our colleagues in China who discovered that the concept of creativity among Chinese teachers included such

characteristics as “honesty”, “respect for elders”, “responsibility” and collectivist orientation (Rudowicz & Yue, 2000) as well as with the findings showing that in the implicit culture-specific theories of creativity in India and the U.S. dominate culturally-approved personality traits (Runco & Johnson, 2002). The comparison of values revealed significant differences between Russians and representatives of the peoples of North Caucasus: Conservation values are more important for the representatives of the peoples of North Caucasus than for the Russians and Tuvins, and Openness to change values are more important for Russians than for Tuvins and the peoples of North Caucasus. These differences reflect the different positions of the studied cultures on the “traditional - modernized” continuum where the Russian culture is closer to the modernized pole, while the Tuvins culture and that of the peoples of the North Caucasus are closer to the pole of traditionalism. Comparing the values of the representatives of North Caucasus and Tuvins revealed significant differences in values of Conservation (more important for the peoples of North Caucasus). In addition, the comparison of the Index of innovativeness across the three cultural groups based on Kolmogorov-Smirnov showed no significant cross-cultural differences in the Index of innovativeness, i.e., the attitudes of respondents from all cultural groups are all positive (mean values from 3 to 4 points on the 5-point scale) (Lebedeva, 2012).

The analysis through structural equation modeling revealed a culturally universal model of influence of values on attitudes to innovation, both direct and through implicit theories of innovation, in three different cultures. In addition, the indicators of the partial mediation model, combining both the direct effect of values on attitudes to innovation, and the indirect effect of implicit theories of innovativeness, were better which allowed us to treat this as a model closer to the studied reality. There were revealed significant correlations between values, implicit theories of innovativeness and attitudes to innovation in the Russian and Tuvins groups, but not in the sample of representatives of the peoples of North Caucasus. This can be tentatively attributed to the fact that individual values in more traditional cultures may not have a significant effect on attitudes and behavior. This is confirmed by international studies that show that the degree to which values motivate behavior depends on social norms and group pressure: the more normative the behavior is, the more it is influenced by individual values (Bardi & Schwartz, 2003; Lebedeva, Schmidt, 2012).

The cross-cultural analysis of the models and relationship schemes in the three cultural groups separately showed that in Russians values of Openness to Change have a direct and positive impact on the Index of innovativeness while values of Conservation affect it directly and negatively. In this case, the values of Conservation exercise a positive impact on social implicit theories of innovativeness, which transmit this positive impact onto attitudes towards innovation (Index of innovativeness) without changing. This model revealed the mediating role of social implicit theories of innovativeness in the impact of Conservation values on attitudes to innovation. It is important to note that the direct and mediated by social theories of innovativeness impact of Conservation values on attitudes to innovation is of a multidirectional nature: while the direct impact is negative, the impact mediated by social theories of innovativeness is positive.



In Tuvin, values of Openness to Change, just like in Russians, positively and directly affect the attitude towards innovation. Conservation values have a negative impact on individual implicit theories of innovativeness which transform this effect into opposite (positive) effect on attitudes towards innovation (Index of innovativeness). Conservation values also positively affect the social ITI which do not have significant effect on attitudes to innovation.

The two samples reveal the positive mediating role of implicit theories of innovativeness - both individual and social - in the influence of Conservation values on attitudes to innovation. This is the principal novelty of this study which throws light on the salient role of implicit theories of innovativeness in the relationships between values and attitudes to innovation in different cultures, which consists in converting the direct negative impact of Conservation values on attitudes to innovation into positive impact mediated by implicit theories of innovativeness.

In conclusion, this study was the first to identify the implicit theories of innovativeness in different cultural groups of the Russian society. It revealed a culturally universal model of influence of values through implicit theories of innovativeness on attitudes to innovation. This indicates that innovative human behavior is conditioned not only by one's attitudes toward innovation, but also by the culture in which one was socialized and learned values and implicit theories of innovativeness. The study demonstrates how Conservation values, commonly regarded as hindrance to innovation, can be transformed through implicit theories of innovativeness and, thus, support innovation. The notion that an innovator must possess socially-oriented qualities (trust toward people, honesty, obedience, respect for authority) can contribute to acceptance of innovations, and this is important to consider when planning and implementing innovations in different regions of Russia.

## **5.FINDINGS**

1. There were revealed cross-cultural differences in implicit theories of innovativeness: individual theories of innovativeness are more pronounced in Russians, whereas the respondents from North Caucasus and Tuva have more pronounced social theories of innovativeness.
2. There were found significant cross-cultural differences in values between Russians and the representatives of the peoples of North Caucasus: Openness to Change values are more important for Russians, while Conservation values are more essential for the representatives of Caucasus and the Tuvin.
3. The study constructed a culturally universal model of direct and mediated by implicit theories of innovativeness effects of values on attitudes towards innovation.
4. The direct effect of Openness to Change values on attitudes to innovation is positive, while that of Conservation values is negative.

5. The study revealed the important mediating role of implicit theories of innovativeness - both individual and social - in the effect of Conservation values on attitudes to innovation, transforming the negative effect of Conservation values into a positive one.

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