

## RESEARCH ARTICLE

DOI: 10.21684/2587-8484-2018-2-1-41-52

UDC 316.7(082) + 37.0(82)

## Educational Policies, Types of Consciousness, and Professional Orientation of Students (1990-2017)

Elena B. Mostovaya<sup>1</sup>, Oksana V. Skvortsova<sup>2</sup>

<sup>1</sup> Dr. Sci. (Soc.), Professor, Novosibirsk State University  
3304146@mail.ru

<sup>2</sup> Cand. Sci. (Ped.), Associate Professor,  
Siberian State University of Water Transport (Novosibirsk)  
skv-ok@yandex.ru

**Abstract.** This article analyses the relationship of educational policies, types of consciousness, and professional orientation of students — the most mobile group of the population. The analysis focuses on 1) the possibility of the Russian society to develop into post-industrial (informational) direction and 2) identification of the actors of such development. Meaningful interpretation of Russia moving in the informational direction relies on theoretical provisions set forth in the works by Nikolai Kondratiev, Joseph Schumpeter, Daniel Bell, Alvin Toffler, Manuel Castells, and Richard Florida. The authors formulate a *hypothesis* about the close interdependence of social consciousness and the achievability of the socio-economic development goals. The analysis of such relationship requires authorial tools. Within the limits of the set tasks, the authors comment on the results of their previous sociological research in collaboration with other research groups and supported in 2017 by the RFBR grant no 17-03-00444 *Modernisation and New Industrialisation in the Region: The Sociocultural Context*. The results of the studies, presented here, illustrate the contradiction between the educational strategies (elected by the majority of students) and the objectives of the reindustrialisation (or secondary modernisation), relevant to the contemporary Russian conditions. The key findings of the study include creative consciousness, which is in demand in the post-industrial (informational) society, and which has kept a steadily minor representation in the students' environment. The attractiveness of the performance variety of market consciousness and, in particular, its "intelligentsia" subtype has declined sharply. However, the attractiveness of entrepreneurship has increased rapidly. Educational social subsystem provides positive transformation of youth's individual educational strategies towards enhancing the attractiveness of traditional (for the industrial society) strategy of professional specialisation. However, the education system does not cope with the task of mass production of new (creative) individual educational strategies, which focuses on 1) the actors' permanent self-education, 2) the transformation of education into a special form of the current productive activity, and 3) students becoming the biggest and most high-income group of the population. The outdated perceptions of students as a special group of young people still preserves among the population.

**Keywords:** types of students' value consciousness, professional orientation and educational strategies for maths students, tendency of development of educational subsystems of society, reindustrialisation, secondary socio-economic modernisation of sociological research.

**Citation:** Mostovaya E. B., Skvortsova O. V. 2018. "Educational Policies, Types of Consciousness, and Professional Orientation of Students (1990-2017)". *Siberian Socium*, vol. 2, no 1, pp. 41-52. DOI: 10.21684/2587-8484-2018-2-1-41-52

## INTRODUCTION

The Great Encyclopedic Dictionary (edited by A. M. Prokhorov) defines modernisation as change, improvement, and meeting contemporary requirements [12]. It covers various areas of life in society, although, it is more often considered from a narrower economic perspective. Prof. Chuanqi He from the China Centre for Modernisation Research, Chinese Academy of Sciences, suggested indices, which characterise the modernisation process in a wider sense [7]. When N. I. Lapin adapted the methodology to the Russian reality at the Institute of Philosophy, he revealed not only the multi-level character of primary and secondary modernisation in Russian regions and their *hierarchy*, but also *the imbalance and spontaneity of their modernisation* [8]. He also considered the modernisation more broadly as an evolutionary process of societal development. The existing primary and adapted guidelines do not cover the properties of values, their types, professional orientation, and educational strategy for the population sufficiently.

Yet one cannot achieve the population's participation in the modernisation process. According to many researchers (including D. Bell; M. Castells; R. Florida; T. Parsons; A. Toffler; T. I. Zaslavskaya and R. V. Ryvkina), modernisation requires forming particular mind properties and professional skills, which can influence both the scale, quality, and the population's readiness for such participation [2, 3, 5, 11, 16, 17]. The educational environment is the main institution, which contributes to the formation of the desired qualities. The students, who choose an educational strategy, are the most flexible actor of the society's modernisation and its re-industrialisation. The study of the dominant values in the minds of students, professional orientations, competencies, and other qualities ensures and allows seeing a clear image of the modernisation course and its prospects in the future, as we think.

## RESULTS

### Three types of value consciousness

Our studies in recent years (1989-2017), carried out in the conditions of the Russian society's systemic transformation, confirmed the existence of three basic types of consciousness in adults and young people in Russia. They are *the command-bureaucratic, market, and creative consciousness*. Without going into details of these types, one can note that *the command-bureaucratic* consciousness favours the official hierarchy governed by the principle "I am the chief, you are the fool", and it can manifest itself in two ways. First, as a *commander-like* consciousness, for which subordination strictly limits the behavioural boundaries. Second, an *executive* consciousness, the main principle (virtue) of which is "do not stand out". A

bearer of the command-bureaucratic consciousness tends not to improve his or her conditions or well-being and spirituality, but rather to maintain the powers, which expand proportionally to the intensity and scale of his or her activities.

*Market consciousness* follows the idea of efficiency: the activities should bring increasing income. Not every increase in the powers and activity of this consciousness is seen as a benefit, but only those generating increasing income or significant savings of effort. *I am richer, my income is higher, so I am better and more successful than you*—that is the basic principle for the success; it also manifests itself in two ways. First, in *the business form*, which searches for the growth of both efficiency and the magnitude of risk activities. Second, *the proletarian form*; it can be characterized as a) permanently saving labour costs, providing the common income and consumption level of goods and services, and b) expanded production capacity as a result of accumulating professional skills and knowledge.

*Creative consciousness* connects all activities with the idea of personal development, self-expression, which is only limited by humanistic principles of social interaction. The criterion of quality of work becomes *individual* and *social novelty* in its essence and result.

*Individual novelty* is what the subject (actor) feels when consuming unfamiliar ideas, services, and goods, as well as when assimilating new information and skills. *Social novelty* occurs only in the creative activities of a bearer of the creative capital<sup>1</sup>, when the subject of creative activity gets the result yet unknown to the society, i. e. something socially new.

The results of the research show that

1. senior and junior students show a steadily *growing* commitment to the values of the market type, *decreasing*—to the command-bureaucratic ones, and *minor* (third in order) to the values of the creative class (Table 1);
2. the proportion of followers of the values of creative, market-based, and command-bureaucratic type *differs greatly* between the senior students of the Novosibirsk universities surveyed in 2007 (Table 2);
3. the first unique feature of value consciousness of senior and junior students of the Department of Mathematics and Mechanics, Novosibirsk State University (NSU) is that *more of them follow the market values and less—the bureaucratic ones (compared to the rest of the Novosibirsk students)*;
4. the second feature is the *growth* of the followers of market values and the *decrease* in such for the bureaucratic values, which occurs among the senior and junior students of the Department of Mathematics and Mechanics, NSU much *faster* than among any other Novosibirsk students;
5. the third feature of value consciousness of first-year students (who study at the Department of Mathematics and Mechanics, NSU) is that they have a *particularly increasing* commitment to the market values of the business subtype.

<sup>1</sup> According to E. B. Mostovaya, a society's creative fund is the ability of its members for sporadic or systematic reproduction of socially new results during a creative activity [9].

The source of these changes was, in our opinion, the deep crisis of the value system of a particular layer in the composition of the Russian population—the intellectual class (intelligentsia). This class can be characterised by a certain set of value tendencies, in particular, spiritual and labour pursuits, the Holy Unmercenaries movement, negation of any power and possessive relations, even political nihilism and civil abstinence — generally, a tendency towards more ideal spiritual motives over material stimuli and preferences for mostly executive forms of exclusively professional activity. Creative freedom in this case is an absolute priority that justifies the losses and privations.

*Table 1.* Types of value consciousness of junior and senior students of Novosibirsk universities in 1990-2007 and 1<sup>st</sup> year students of the Department of Mathematics and Mechanics, Novosibirsk State University (NSU) in 2006-2017 (%)

	The nature of dominant values			
	Creative	Market	Command-bureaucratic	
Junior university students in Novosibirsk (1990-2007)	5-10	50-70	45-20	
Senior university students in Novosibirsk (2007)	5-10	30-50	65-40	
First-year students at the Department of Mathematics and Mechanics, NSU	2005-2009	10-7	50-65	30-45
	2017	7	79	14

*Note:* All the surveys in 1990, 2005, 2006, and 2009 questioned students of the whole groups (75 to 250 people) of the respective universities

*Table 2.* Creative and other types of value consciousness of Siberian senior students at different universities in 2007 (%)

Category of respondents	Types of consciousness				
	Creative, informational	Market		Patriarchal	
		Business	Proletarian	Bureaucratic	Amorphous
1	2	3	4	5	6
Total Including:	6	24	18	5	47
A. The citizens of the Novosibirsk Region, studying at the university campuses	7	18	28	4	43
Including the branches of					
Novosibirsk State Technical University	7	21	29	6	37

Table 2(End)

1	2	3	4	5	6
Novosibirsk State Pedagogical University	6	27	10	2	54
Siberian State University of Geosystems and Technologies	6	22	22	4	47
<b>B. Senior students of the leading universities in Novosibirsk</b>	5	25	16	4	49
<i>Including</i>					
Novosibirsk State University	4	37	9	9	41
Siberian University of Consumer Cooperation	8	30	16	4	42
Novosibirsk State Technical University	5	26	16	4	49
Novosibirsk State Pedagogical University	6	22	21	4	47
Novosibirsk State University of Architecture and Civil Engineering	6	15	24	8	47
Novosibirsk State Medical University	6	17	19	3	55
Novosibirsk State Agricultural University	5	12	19	1	63
Other state universities*	9	26	10	7	48
Non-state universities**	8	15	19	4	54

*Notes:* The survey of graduate and undergraduate students was conducted in October–December 2007 in 20 state and non-state universities of Novosibirsk, as well as their branches in the region (in Berdsk, as well as in the Kuybyshevsky, Iskitimsky, and Toguchinsky Districts) in terms of the *Student Youth's Innovative Potential* research project headed by I. I. Kharchenko, Cand. Sci. (Soc.), Institute of Economics and Industrial Engineering (RAS Siberian Branch); the quota sampling included 1,947 people, which was representative for the major universities in the Novosibirsk Region;

\*Novosibirsk State University of Economics and Management, Siberian State University of Geosystems and Technologies, Siberian Transport University, Siberian State University of Telecommunications and Information Sciences, and Siberian Institute of Management are combined due to the small number of respondents, which is insufficient for detailed specifications;

\*\*Siberian Independent University and Novosibirsk Humanitarian University

The crisis of the value system—*intellectual consciousness*—lies within its inconsistency: creative activity requires economic powers, and thus, learning the economic component of a value system. Rejecting power and economic authority limits the freedom of one's creative manifestations. Yet in Soviet times, this value system could be steadily reproduced, and it even dominated among some of the Russian population groups.

The much quicker rate of these changes in the structure of value consciousness of first-year students at the Department of Mathematics and Mechanics, NSU proves the crisis of the intelligentsia's consciousness. This department mostly teaches the graduates of schools, lyceums, and gymnasiums (70%), who constitute 25% of other Novosibirsk universities' students. These students come from families, in which 70% of mothers and 64% of fathers had a higher level of education in 2005-2009; in 2017, they were 80% and 67%, respectively.

Exaggerated commitment of NSU's younger students to entrepreneurial values is also a manifestation of the crisis in the intelligentsia consciousness. If 25 years ago, the students, specialising in physics and mathematics (and who made up 40% of first-year students of this department), demonstrated the intellectual system of values in 35% of cases, today's freshmen have lost this commitment (3-5%).

The evidence of the crisis of the intelligentsia consciousness can be seen in the responses of the freshmen students on the question of what they call mathematics.

## DISCUSSION

### Changes in professional consciousness and attitude towards mathematics among first-year students

Based on the definitions of mathematics, given the freshmen students of mathematics at NSU and Novosibirsk State Pedagogical University (NSPU)<sup>1</sup>, we distinguished three types of professional consciousness of the students of mathematics in 2005-2006.

*The first—pre-professional*—is shown by the students, who did not answer the question and gave no definition of mathematics; they only described their attitude towards it, using different metaphors instead of proper explanations. They have demonstrated an unformed, more school-like understanding of mathematics.

<sup>1</sup> To show the prevailing views on mathematics of students at NSPU and NSU, we have analysed their answers to the question *What is mathematics? How do you define it?* We asked the students to write their answers to this question without any limitations. Their answers show the following: what definitions the students have; what they store in their short-term memory and on the surface of their mind; what concepts they employ, and how diverse or similar these concepts are; which and how many words the students use to define the concept and how coherently. At NSPU, the survey included 330 freshmen students (in 2004-2006) of the mathematics faculties, thus, they were the students who chose to pursue mathematics professionally as their subject of choice; besides them 26 part-time students of Social Pedagogy in 2005 (who do not pursue mathematics as their profession). At NSU, the survey questioned 482 freshmen students of the Department of Mechanics and Mathematics (2005 and 2006), who show a professional (or academic) interest towards mathematics.

*The second—professional*—is seen among the students, who named the objects of mathematical studies or defined this discipline as fundamental for the career. Thus, the definitions, given by the students of this type of consciousness, express their attitude towards mathematics as the field of their future expertise or means of fulfilling their professional ambitions.

*The third—post-professional*—is demonstrated by the students, who define the mathematics as the means of developing their mind or the basis for further self-education. They, thus, highlight the role of the mathematics in forming the logical mind and active innovative thinking, as well as the influence of this discipline on developing personal creative traits (according to O. V. Skvortsova [15]).

Thus, the respondents show the understanding of mathematics' unique role in informational (post-industrial) society.

Same methods and typology can be applied to identifying and learning the features of *professional consciousness and attitude towards the mathematics* among the students of the Department of Mathematics and Mechanics, NSU in 2017.

Same as in 2005-2006, the students (214 totally surveyed, *everyone* from this department) formed three groups according to the professional aspects of their consciousness and attitude towards the mathematics (pre-professional, professional, and post-professional; Table 3).

In the decade, the share of stereotypical and metaphorical definitions grew 1.5 times. Some of them even wrongly ascribe Gauss' phrase "Mathematics is the queen of the sciences" to Lomonosov.

The proportion of people with the creative attitude towards the mathematics decreased from 17 to 10%. Besides, there were much fewer unique definitions or ones rich with diverse phrases and mathematical terms in 2017.

Compared to 2005-2006, the freshmen students of NSU gave more vivid, logical, and diverse definitions in 2017. In 2005-2006, the definitions were 16 to 20 words on average, while in 2017, their length decreased four times; 20 words now was only the longest of them.

These changes indicate the reduction of contemporary students' vocabulary, degradation of the speech, narrowing of their mind, and overall stereotypicity of their minds, which only evidences the existing educational crisis.

### Students' learning strategies

An important result obtained during a comparative study of *competencies*<sup>1</sup> taught at universities, refers to learning strategies chosen by the students at the start of

<sup>1</sup> Various researchers defined competencies differently. For example, according to O. N. Oleynikova et al., the competencies are "an ability to employ one's knowledge, skills, and experience in familiar or not so familiar labour situations" [10, p. 19]. I. A. Zimnyaya sees them as "certain internal potential hidden psychological new formations (knowledge, concepts, programmes <...> of actions, value and relation systems), which are then identified in one's competencies as relevant activity forms" [18, p. 23] (cited from V. I. Baydenko [1, p. 7]). J. Raven understands them as "a motivated pattern of knowledge, skills and abilities deployed to undertake a valued activity" [13, p. 39].

their studies, and fixed by the time they graduate. Individual learning strategies are, apparently, under certain (yet unclear) influence of value consciousness types, observed by the adherents of such strategies. These strategies can be divided into three relatively independent types: *archaic*, *traditional*, and *new* strategies.

An individual learning strategy becomes available to an external observer by verbalising one's personal plans for continuing learning after finishing the current step of education and receiving a qualification certificate. If students (7-9 out of

*Table 3.* The initial typology of professional features of 1<sup>st</sup> year students' consciousness at the Department of Mathematics and Mechanics, NSU in 2005-2006 and 2017 (%). The question: *Define mathematics*

	Department of Mathematics and Mechanics, NSU (%)					Department of Mathematics, NSPU (%) 2005, 2006
	2005	2006	2005-2006	2017	2005-2006, 2017	
<b>1. Pre-professional</b> consciousness and attitude, including	30	43	38	42	40	53
— not definitions;	16	21	19	18	18.5	34
— expressed their attitude to the discipline instead of defining it;	6	7	7	6	6.5	9
— formulated the stereotypical definition of mathematics	8	15	12	18	15	10
<b>2. Professional</b> consciousness and attitude, including	50	41	45	48	46.5	40
definitions of mathematics as						
— “the science that studies...” (naming objects), or the means of calculations;	25	23	24	38	31	25
— a universal language;	4	2	3	3	3	1
— applied science, foundation of other sciences;	14	8	11	5	8	2
— one's career;	1	0	0	0	0	2
— no definition, acknowledging its importance	6	7	7	2	4.5	10
<b>3. Post-professional</b> , informational creative mind and attitude (mathematics as a method, means, and the foundation of developing one's mind)	20	16	17	10	13.5	7
Total	100	100	100	100	100	100

10 school graduates) do not plan to continue their learning after graduating and, moreover, they focus on obtaining narrow professional competencies in the current learning process at a university—that is an *archaic* learning strategy.

In the case when respondents plan only to learn professionally relevant subjects (courses and other mostly short-term forms) or change their major field and receive another degree, whilst assessing *self-educational competencies* in the current education process just as an additional source of improving one's professional competencies—that is a *traditional* individual educational strategy.

Individuals, who choose a *new* learning strategy, focus on continuous self-education, plan to continue their studies after graduation by getting a master's or a Ph. D. (either full- or part-time), or even an abroad scholarship; at their current step of education, they prefer general self-educational competencies: communicative, linguistic, and informational ones. Such individuals do not see the change of career (because of any external circumstances) as an unfortunate event or a crisis, unlike the followers of archaic and traditional learning strategies. Any mundane conflicts can become a stimulus for learning universal adaptive competencies, which can broaden one's individual life-space.

According to the surveys of Novosibirsk students, conducted by the Laboratory of Sociological Studies, NSPU in 2005-2006 at mathematical departments at NSU and NSPU, as well as in 2007-2008 in leading Novosibirsk universities (1,500 questionnaires, representing professional qualification of Novosibirsk universities)<sup>1</sup>, one can see the following results:

1. the most common individual learning strategy remained to be the *traditional* one—50–70% of senior students tended to choose it;
2. a significant part (20–30%) of graduates of the Novosibirsk universities remained committed to the *archaic* individual learning strategy;
3. *new self-educational strategies* were not popular; their followers were mostly concentrated in the NSU (60% of local students), while at other universities they were even fewer (no more than 10–20%);
4. the role of Novosibirsk universities in transforming individual learning strategies lies mostly in overcoming junior students' preferences for archaic learning strategy and in promotion of traditional ones—the followers number of the former decreased from 45–60% to 20–30%, whilst for the latter, it grew from 30–35% to 50–70%;
5. as for the new learning strategy, the students must have accepted it outside the university activities—the number of its followers did not change during the study period in any of the observed universities, remaining the same both at the entrance and graduation.

<sup>1</sup> The authors of the questionnaire, used in the surveys, are Dr. Sci. (Biol.) L. G. Borisova (corresponding member of RAS), I. I. Kharchenko (senior research associate, Institute of Economics and Industrial Engineering), and Dr. Sci. (Soc.) E. B. Mostovaya (professor, Novosibirsk State University).

In 2017, these trends were not confirmed. The results showed that 70% of freshmen students at the Department of Mathematics and Mechanics, NSU preferred *traditional* learning strategy, 10% — *new* (self-educational), and 20% — *archaic*. These data differ significantly from the surveys of junior and senior students of the same department in 2006–2009. The number of followers of the *new* self-educational strategy decreased six times, while the share of the traditional (professional) strategy grew 2.5 times and reached 70% in 2017, compared to 30% in 2006–2009. Only the number of the archaic strategy's followers remained the same—10%. These data, in our opinion, indicate the growing crisis of the intellectual consciousness. Indirectly, this conclusion is confirmed by the decreasing number of the students at the Department of Mathematics and Mechanics, who major in theoretical mathematics, and the growing number of those opting for applied sciences; besides, there is a decreasing number of master students and the increasing popularity of the Department of Information Technology, compared to reducing competition entrances to the admission to Department of Mathematics and Mechanics.

### CONCLUSION

1. The dominance of the market consciousness, observed among younger students in 1990s, transformed into hypertrophied entrepreneurship at the Department of Mathematics and Mechanics, NSU in 2017.
2. Creative consciousness, demanded in the post-industrial society of knowledge, preserved its minor representation among the students.
3. The attractiveness of the executive type of market consciousness (and its intellectual subtype in particular) decreased drastically. Yet, as rapidly, the attractiveness of entrepreneurship increased.
4. The educational social subsystem provides positive transformation of youth's individual educational strategies towards enhancing the attractiveness of traditional (for the industrial society) strategy of professional specialisation.
5. The educational social subsystem does not cope with massification of the new (creative) individual educational strategy, which focuses on continuous self-education; on eliminating students' outdated image as a unique young group; on transforming self-education into a distinct form of productive activities, and students—into the largest and most profitable group.

### ACKNOWLEDGEMENTS

The work is financially supported by the Russian Foundation for Basic Research (the grant no 17-03-00444a) *Modernisation and Industrial Development of the Region: The Sociocultural Context*. The head of the project — Dr. Sci. (Soc.), Prof. E. B. Mostovaya (Novosibirsk State University).

## REFERENCES

1. Baydenko V. I. 2006. Vyyavleniye sostava kompetentsiy vypusnikov vuzov kak neobkhodimyy etap proyektirovaniya GOS VPO Novogo pokoleniya: metodicheskoye posobiye [Identification of the Composition of Competencies of Graduates of Universities as a Necessary Stage of Designing the State Educational Institution of Higher Professional Education of the New Generation: A Methodical Manual]. Moscow
2. Bell D. 2004. Gryadushcheye postindustrial'noye obshchestvo [The Future Post-Industrial Society]. Translated from English. 2<sup>nd</sup> edition, revised. Moscow: Academia.
3. Castells M. 2000. Informatsionnaya epokha: ekonomika, obshchestvo, kul'tura [The Information Age: Economy, Society and Culture]. Translated from English; edited by O. I. Shkaratana. Moscow: GU VShE.
4. Florida R. 2005. The Flight of the Creative Class. The New Global Competition for Talent. HarperBusiness, HarperCollins.
5. Florida R. 2007. Kreativnyy klass: lyudi, kotoryye menyayut budushcheye [The Rise of The Creative Class and How It's Transforming Work, Leisure, Community and Everyday Life]. Translated from English by A. Konstantinov. Moscow: Klassika-XXI.
6. Kondratyev N. D. 1991. Osnovnyye problemy ekonomicheskoy statiki i dinamiki [The Main Problems of Economic Statics and Dynamics]. Moscow: Nauka.
7. Lapin N. I. (ed.). 2011. Obzornyy doklad o modernizatsii v mire i Kitaye (2001-2010) [Review Report on Global and Chinese Modernisation (2001-2010)]. Translated from English. Moscow: Ves' mir.
8. Lapin N. I. (ed.). 2016. Atlas modernizatsii Rossii i eye regionov: sotsio-ekonomicheskiye i sotsiokul'turnyye tendentsii i problemy [Modernisation Atlas of Russia and Its Regions: Socio-Economic and Socio-Cultural Trends and Challenges]. Moscow: Ves' mir.
9. Mostovaya E. B. 2001. Tvorcheskiy kapital i ego rol' v ekonomike [Creative Capital and Its Role in the Economy]. Novosibirsk: NGU.
10. Oleynikova O. N., Muravyova N. A., Konvalova Yu. V., Sartakova E. V. 2005. Razrabotka modul'nykh programm, osnovannykh na kompetentsiyakh [Development of Modular Programs Based on Competencies], p. 19. Moscow: Alfa-M.
11. Parsons T. 1997. Sistema sovremennykh obshchestv [The System of Contemporary Societies]. Moscow: Aspekt-Press.
12. Prokhorov A. M. (ed.). 2000. Bol'shoy entsiklopedicheskiy slovar' [Great Encyclopaedic Dictionary]. 2<sup>nd</sup> edition, revised. Moscow; Saint Petersburg.
13. Raven J. 2002. Kompetentnost' v sovremennom obshchestve: vyyavleniye, razvitiye i realizatsiya [Competence in Contemporary Society. Its Identification, Development and Release], p. 39. Translated from English. Moscow: Koshto-Tsentr.
14. Shumpeter J. 1982. Teoriya ekonomicheskogo razvitiya [The Theory of Economic Development]. Moscow: Progress.

15. Skvortsova O. V. 2009. "Izmereniye tsennostnykh oriyentirov matematicheskoy podgotovki v sovremennom obshchestve" [Measurement of Value Orientations of Mathematical Training in Contemporary Society]. In: Alma Mater (Vestnik vysshey shkoly), no 1, pp. 17-29.
16. Toffler A. 1997. Futuroshok [Future Shock]. Translated from English. Saint Petersburg.
17. Zaslavskaya T. I., Ryvkina R. V. 1991. Sotsiologiya ekonomicheskoy zhizni [Sociology of Economic Life]. Novosibirsk: Nauka.
18. Zimnyaya I. A. 2004. Klyuchevyye kompetentnosti kak rezul'tativno-tselevaya osnova kompetentnostnogo podkhoda v obrazovanii. Avtorskaya versiya [Key Competences as the Effective-Target Basis of the Competence Approach in Education. Author's Version], p. 22. Moscow: Issledovatel'skiy tsentr problem kachestva podgotovki spetsialistov.