Effective Management of Innovative Processes in Latvian Education: Teacher-mentors View

Irēna Kokina[*], Jelena Davidova

Faculty of Education and Management, Daugavpils University, Daugavpils, Latvia

Abstract The current problems and obvious contradictions in Latvia's education require flexibility in pedagogical work: one the one hand, the system of Latvian education needs changes, and on the other hand, we also need people who will advance and stimulate these processes. This poses a question: what are the most essential teacher's competences which can ensure the introduction of innovations into education? The purpose of this research is to investigate those teacher's competences which would ensure effective management of innovative processes in education, and to study opinions of Latvian teacher-mentors about factors contributing to or impeding the introduction of innovations into Latvian education. In this research, teacher's competences which can ensure the introduction of innovations into education were formulated. By applying a questionnaire survey method, teacher-mentors' (N= 173) opinions were studied: a) about those most essential teacher competences that can ensure the introduction of innovations into education; b) about factors that contribute to or impede the introduction of innovations into the Latvian education system.

Keywords Teacher-mentor, management of innovative processes, Latvian education

1. Introduction

Re-orientation of the Latvian society towards a sustainable development poses several serious problems, the central one being changes in the educational system: they cannot occur and cannot be introduced without a continuous and systematic professional perfection, without innovative activity. At analysing sustainable development in education, researchers indicate that effective education needs to be flexible and adaptable, interdisciplinary or trans-disciplinary, collaborative, experiential, holistic, locally relevant, emphasizing values, future-oriented, action-oriented, learner-centred, problem solving and systematic[15]. These requirements can be satisfied through teachers' innovative activity because, according to P. Wexler, innovative activity is an element in the structure of teachers' pedagogical activity[27; 471].

An education system is not required to introduce changes merely to respond to changes in its environment. According to M. Fullan[12], changes in school should be a modus vivendi. However, while innovation may concern new programs and practices, change is a wider term and involves alterations in the beliefs and behaviours of individuals as well as in practices and structures which are not necessarily new[7; 16].

According to R. Evans[8], change (or innovation) is a productive process and must be made by people. People are the driving force of change, and its success depends on them: in this sense, innovation will never be successful as long as the teacher is simply following instructions and is treated as a passive recipient, ordered to follow mandatory decision. He/she needs to take an active part and become a vehicle for a continuous improvement.

The previous research on this issue done by the authors of the paper[5] shows, that teachers commonly associate the notion of innovation with originality, novelty and progress. They are aware of the role of innovation in the process of education development. The investigation has also revealed the fact that innovation is seldom discussed at school, and teachers' workloads are heavy. Some teachers, who have had a long and considerable work experience, and those who are content-oriented, feel pessimistic about the possibility to implement innovative ideas in Latvia's education. At the same time, teachers also emphasize many problems and ambiguities in Latvia's education which require flexibility in pedagogical work. From the above it becomes clear that, on the one hand, Latvian system of education needs changes (innovations), and on the other hand, there are to be people who could advance and stimulate these processes. The force that would be able to initiate and manage the introduction of innovations into Latvian education is teacher-mentors, to our mind.

Mentoring as a term is relatively new in Latvia. During the period of 2010 – 2012, more than 700 teacher-mentors have been trained in Latvia whose activities involve providing

support for students, newly qualified teachers or colleagues at introducing new content and technologies, acquiring new skills, thus promoting professional growth and integration into the professional environment.

Mentoring is a support provided by more experienced professionals for the growth and learning of others, for initiating, developing and introduction of innovations and for ensuring their integration and acceptance by a particular community. Teacher-mentors are the individuals who are open, available and encouraging others mainly through their readiness to tell stories from their experience and help others realize that they are creating their own stories. Applied to a contemporary education, especially to that of teachers, it implies that teacher-mentors help the present and the future teachers to bring the contradictions in the pedagogical process into focus and can offer solutions to these problems.

The objective of teaching practice under the guidance and responsibility of a teacher-mentor is to provide mentees with professional assistance and advice through mentoring. L. Spuhler[25] points out that an effective mentoring experience leads to mentees' increased satisfaction and competence in teaching.

According to N. Cohen[2], there are six basic qualities of a good mentor:
- committed to the role of mentor,
- accepting the mentee,
- skilled at providing instructional support,
- effective in different interpersonal context,
- a model of a continuous learner,
- positive and optimistic in communication.

We consider that the conception offered by N. Cohen lacks one essential aspect: initiating and management of innovative activity. Therefore a question arises: what are the most essential teacher's competences which will ensure the introduction of innovation into education?

The purpose of this research is to investigate those teacher's competences, which would promote and ensure the introduction of innovation into education, and to study opinions of Latvian teacher-mentors concerning the factors contributing to or impeding the introduction of innovations into Latvian education.

2. Innovations in Education

Currently, innovation is interpreted as the driving force for processes of change, as the most effective way to prosperity, as transfer of knowledge, new way of thinking, and new way of life[26],[10],[11],[24],[23]. The notion of innovation comprises three meanings: innovation as instrument, innovation as process or action, innovation as end result (new offers, new technologies, changes in social life etc.). Innovative activity is an activity that involves the application of scientific and technical achievements, knowledge and information in accordance with the changes in the society and for the improvement and promotion of economic, social, legal, cultural, educational and other processes vital for the

society. According to this formulation, innovative activity should include knowledge about scientific, technological and management processes and about other disciplines pertaining to social and humanitarian sciences[5].

In Latvia, innovation is predominantly understood as a process where new scientific, technical, social, cultural or other ideas, productions and technologies are implemented in a competitive product or service demanded by the market[20]. It is obvious that this basic definition emphasizes the necessity for the innovation process to result in some market product. We think that this is possible in all research fields, and market value of innovation is not the only criterion in a long-term context.

Innovation and sustainability are interrelated notions: sustainability as an integrative principle is an appropriate tool to measure the depth of innovative ideas. Creativity and changeability are the features of both postmodernism and sustainability, but sustainability, as mentioned above, requires greater integrative unity and holism, because philosophy of postmodernism has its internal discrepancies: loss of sense, discrepancies between the local and global, the universal and individual, the short-tern and long-term perspectives, between the scope of knowledge and human ability to acquire it, between competition and equality, the material and spiritual.

According to A. Kuznetzova[19], innovation is a manifestation of historically and socially developed pre-emptive adaptation: in this context, innovative activity is the creation of socially significant innovations that humanize reality, especially in the field of education.

According to M. Fullan, the process of change has three broad phases:
- 1st phase - initiation, mobilization or adoption - „consists of the process that leads up to and includes a decision to adopt or proceed with change";
- 2nd phase - implementation or initial use - „involves the first experiences of attempting to put an idea or reform into practice";
- 3rd phase – continuation, incorporation, routinization or institutionalization: here the change is either developed as an ongoing part of the system or disappears due to a decision to discard it or due to its weakening[12; 65].

Since change is not a linear process, factors of a phase through feedback can alter the decision taken at an earlier stage: this process continues in an increasingly interactive way[12; 67]. D. Duke[7] adds that when things do not happen according to a plan, people should not stop the change, but be flexible and make necessary adjustments when faced with unexpected situations. The three phases are not independent, but overlap. However, the decisions made and the steps taken in the initiation phase of the process of change affect the future and greatly advance its success and effectiveness[14; 38].

According to K. Morrrison, the effectiveness of change concerns people more than the content[22; 14]. The way people deal with change is influenced by their understanding and experiences which they have already constructed during

their lives. According to M. Fullan, change is necessary for teachers themselves, because many of them often feel disappointment, frustration and boredom: change should lead to the improvement of students' results, simultaneously increasing teachers' satisfaction with their job[12; 138].

Therefore, when teachers' needs and problems are identified, the dominant person is a teacher: these needs exist in school and in the classroom, where the educational process takes place. K. Morrison[22] stresses, change is effective when it responds to real and perceived needs: the policy cannot manage processes taking place in schools and classrooms, the crucial factors for change are the classroom and the teacher.

K. Everard & G. Morris[9] state that change is recognized as a process of interaction, dialogue, feedback, goal alteration, re-planning, treatment of conflicting emotions and values, pragmatism, dealing with self-interested groups, patience and confusion: only in this way can it be significant. Significant change implies alteration in beliefs and values of people and includes change in perception and behaviour; therefore it is so difficult to make[12]. Moreover, a change that has to be successful and durable needs the reconstruction of culture, consequently it will make teachers reflect and change their beliefs and practices [14],[12]. This leads to the development of infrastructure and processes which will involve teachers in the development of new knowledge, skills and perceptions: in this context, change requires development and management of human resources[22].

3. Most Essential Teacher's Competences for Effective Management of Innovative Processes

In post-modernism society, competence is a key word in education. Competences for creating innovation develop in the interaction between:
- respective personal properties: motivation, intuition, sensitivity, creativity, non-linear thinking, cooperation, tolerance[17],[4];
- broad theoretical and practical knowledge, abilities and skills;
- innovation culture at the level of micro and mezzo environment.

Management of innovative processes involves psychological/social aspects of opposite meaning: convergent and divergent thinking, adaptive and creative personality properties, internal and external motivation. These bipolar dimensions constantly fluctuate depending on a question that has just arisen[18]. Consequently, creativity as a feature of innovation is not the antithesis of scientific logic, but rather a basic activity of scientific thinking.

The process of creating innovation develops from three basic activities – to feel, think and do: they do not develop linearly, but constantly interweave one another. Properties, intellect and experience of personality should manifest themselves in those concrete competences that are needed to

identify problems, summarize and analyze information, find alternative ideas, synthesize, evaluate.

The goal of a pedagogical process based on a human approach is an independent, creative personality who is in a close dialogue with a society where freedom is respected and orientation is towards today's problems[16]. Subjective sensations and feelings receive great attention in human pedagogy: the ability to sensitively identify and address a problem is an essential teacher's competence that enables him/her to make an innovation topical and meaningful. Hermeneutics is a significant aspect of improving pedagogical competences and creating innovations: such hermeneutic skills as interpretation and transformation of one's own and other people's experience are especially vital for a teacher. The hermeneutic aspect is dynamic, continuous and creative. In pedagogy, a hermeneutic circle, where the end determines the beginning and the beginning – the end, corresponds to the very essence of a pedagogical activity. In hermeneutics, a constant transition of thoughts from the whole to the particular and vice verse takes place, but the sense is manifested only in the relationships with the whole.

In the course of pedagogical activity, every teacher inevitably confronts traditional opinions: it is even assumed that an innovation that does not evoke a counter reaction is not a real innovation: change almost always implies losses[8; 28]. Since change requires learning new things and developing new skills, it causes stress, feeling of helplessness, confusion and leads to conflict[14],[22],[8]. Therefore the creation of innovations requires certain properties of a character: courage to take risks, independence and stability[21],[3]. In humanism the responsibility for one's own decisions and freedom co-exists.

The essence of post-modernism time (which can be expressed as a concept of independent creation, as openness of thoughts and ideas[13]) is its being a favourable background for an innovative activity, for an interaction between individual freedom and scientific logic. Post-modernism allows for cognitive and interpretational diversity, for constructivism and changeability, but it also involves constant criticism that questions everything.

However, we should not overlook the fact that, in compliance with the standards of education, the admissible diversity does not cancel the requirement for scientific substantiation of pedagogical innovations, which requires following a proper and precise procedure. The post-modernism tradition to apply the method of dialectic Platonism to prove the truth of knowledge maintains a balance, which, in its turn, contributes to logical thinking.

For a teacher-innovator, scientific cognition - an explicitly purposeful kind of cognition, intensive discovery of objectively new (unknown) connections, which needs preliminary preparedness - is especially essential[28]. This cognition requires an inter-disciplinary view. To evaluate the impact of your pedagogical innovation in various contexts, your knowledge should be broad and go beyond the limits of your own field. This would also comply with the principles of sustainable development. Scientific cognition develops

integrative skills, which in its turn promotes the effect of creativity. Within this context, pedagogical reflection has a special role: a teacher looks at the whole scenario from as many aspects as possible - from aspects of people and their relationships, of situation, place, time, chronology and causal relationships[1]. Deep reflection enables a teacher to make a choice and take the responsibility for the decisions made.

To create a socially significant pedagogical innovation is a great challenge, because a teacher has to meet with extensive criticism. Consequently, in this situation a teacher-innovator needs initiative and must be aware about risks, needs courage, persistence, flexibility and confidence. However, in a long-term period, focusing on usefulness only might not be always a benefit; therefore it is essential to speak about the research identity and motivation.

The DIUS argues that when it comes to innovation „most new ideas do not appear as a flash of inspiration to a lone genius inventor, they come from how people create, combine and share their ideas"[6; 57]. In line with this, innovation does not necessarily mean developing ideas completely new to the institution, but may relate to taking already existing ideas and adapting them for the use in new environments and settings. In this way, combining and sharing are of as much importance as creating anew.

Thus, effective management of change should be performed by a teacher, who is not a passive instrument, but is acting effectively in the process of change within an organization that fosters learning, experimentation of innovations to improve the education process and students' performance.

4. Research Methods and Participants

A survey method is applied in this research for the aim to investigate Latvian teacher-mentors' opinions:

a) about the most essential teacher competences necessary for ensuring the introduction of innovation into education;

b) about factors contributing to or impeding the introduction of innovation into the system of Latvian education.

The research employs Likert scale, which is the most frequently used scale in the research on attitudes. Likert scale is convenient, because it helps a) to avoid the ambiguity in respondents' answers which may occur in the case of free answers, b) to create indices for identifying factors that influence the parameters under the research. Likert scale consists of a list of statements with ready-prepared evaluating answers. Specifically, the five-point Likert scale was used with "Strongly disagree" to correspond with 1, through the "Strongly agree", which corresponds with 5.

173 teacher-mentors from various regions of Latvia (Kurzeme, Latgale, Vidzeme, Zemgale) and with different level of education (higher education without a bachelor's degree, with a bachelor's degree and with a master's degree) participated in the survey.

Teacher-mentors were offered a list of teacher competences and a list of factors contributing to or impeding the effective management of innovative processes in education, in respect of which they had to provide their evaluative attitude.

5. Results of the Research

A. Latvian teacher-mentors' opinion about teacher competences which can ensure the introduction of innovations into education

The survey showed that teacher-mentors have a positive attitude to innovation. Table 1 provides the mean of their responses.

In Latvia, training of teacher-mentors was started only two years ago, and the application for this training was voluntary. Therefore it is only logical that teachers who participated in these activities are motivated for changes and want to participate in the management of these changes. This is why we are not surprised that teacher-mentors have evaluated so high such teacher's competence as ability to generate innovative ideas and initiate innovative activities before other colleagues (4.74). The evaluation of the stability of attitude is quite persistent in this case, too (0.86). Quite comforting is also teacher-mentors' answer stating that they are strongly oriented to cooperation where they themselves can take on a leading role and are ready to take the responsibility for decisions taken and activities which should be implemented during the process of introducing innovations (4.86). This attitude puts into question the previous unstable experience in all stages of the education system, including that in a concrete institutional level. Simultaneously, such activities contribute to the development of future alternative versions and, through dialogues, help teachers to clarify the system of their personal views and accept the idea about the viability of other alternative development conceptions. This, in its turn, gives stable sense of being involved in creating the future, stimulates a creative spirit, and enables them to accumulate energy and direct activities in a desirable direction.

Table 1. The most essential teacher competences which can ensure effective management of innovative processes in education: Latvian teachers-mentors' view

Teacher's competence	Mean	Std Dev.
Demonstrates critical understanding, personal attitude to problem issues in education, their impact on the diversity of opinions and values, demonstrates responsible action at dealing with these problem issues	3.76	1.10
Initiates and manages those changes in education which are based in the respective cultural environment	3.78	0.84
Demonstrates the ability to create new ideas by interpreting and transforming personal experience	4.38	0.95
Demonstrates the ability to adapt to new situations, openness to changes and readiness to act in unpredictable and changeable conditions	4.56	0.84
Ventures to take the challenge, risk and seek for alternative solutions	4.46	1.08
Demonstrates the ability to take right decisions and find solutions by cooperating; takes responsibility for the decisions made, mutual activities and consequences they involve	4.86	1.10
Demonstrates a critical understanding and respectful attitude to the diversity of educational contexts and social justice as the basic element of sustainable development of education and prosperity of people, demonstrates the ability to bring these problems into focus	2.39	1.10
Demonstrates critical understanding, responsible action and positive attitude to the role of education for maintaining and improving the quality of life of one's own and future generations	2.89	1.05
Is able to generate new ideas, initiates innovative activities before other colleagues	4.74	0.86
Forms and manages a team which is capable to work and supports putting these ideas into action	3.88	0.96
Participates in the implementation of innovative processes, cooperates with school administration, with heads of local government and other institutions	3.78	1.20

Teacher-mentors' desire to be leaders, initiators of changes, to form a team capable to work and not to remain passive, waiting for the contribution from others is reflected teachers' attitude evaluated by a mean - 3.88. This testifies to a positive, though for the present not quite conclusive, tendency: a wish to implement well-considered and sustainability-oriented activities, which, for the time being, are implemented under conditions of explicit uncertainty. In such situations, especially valuable are people who are not only able to put to question opinions and complain about unduly realizable changes, improper time, unstable practice, but, on the contrary, who are thinking critically, see possible innovations and inspire other people by their creative activities. This is also indicated by the comparatively high evaluation given by teacher-mentors to the competence which involves participation in the implementation of innovative processes, cooperating with school administration, local government and leaders of other institutions (3.78). No matter how hard they might try, educational institutions alone would not be able to change the whole system of education, unless they receive support from other institutions, from the whole country and the society in general.

Teacher-mentors were quite cautious at evaluating the role of innovations in regard to social justice as a basic element for providing sustainable development in education and prosperity for people (2.39). Though the stability coefficient in the attitude scale was quite high (1.10), it, nevertheless, testifies to the fact that the present situation in the country does not build the trust of the society and they do not believe that prosperity of people could be achieved by means of changes introduced in education. A similar attitude (2.89) is to the idea about the role of education in maintaining and improving life quality of one's own and future generations. In this case, too, teachers-mentors are not convinced that in the present situation life quality could radically change. To see the "fruits" of the introduced innovations needs longer time, undoubtedly. However, the idea that in today's situation one should still venture to rise to the challenge, take the risk and seek for alternative solutions has received quite a conclusive positive evaluation (4.46). In the authors' opinion, this highlights the present situation in the system of education, and this makes us expect serious changes which will require immediate actions and change of stale opinions.

B. Latvian teacher-mentors' opinion about factors contributing to or impeding the introduction of innovation into Latvian education

To elucidate the link between the present situation and possible changes, ranging method was applied in our research. Teacher-mentors were asked to range the contributing and impeding factors according to the hierarchy of their importance. The contributing factors were ranged in the order as follows:

1. Recognition of the innovation activities as the part of the teacher's work;

2. Creative atmosphere in school and support of colleagues, readiness to take the risk and try different alternative solutions;

3. Receiving material support;

4. Cooperation between teachers, school administration and educational department;

5. Compliance of the introduced innovations with values and needs of pupils;

6. Experience in using research methods and creative

activities;

7. Necessity of independence;

8. All teachers and school administration are involved in the introduction of innovation.

The authors of this paper are well aware of the fact that the research on the introduction of innovation would not be exhaustive, unless those factors, whose slightest manifestations might essentially threaten the viability of innovations, are revealed and studied. Only if we are aware of these obstacles, we can try to remove them in time. Thus, the research revealed the most essential factors impeding the introduction of innovation, pointed out by teacher-mentors in their attitudes (they are arranged in the order of their degree of marked ness and influence):

1. Instability of educational system, lack of explicit aims and strategy;

2. Lack of teachers' initiative and limited support for innovation;

3. Strict administration requirements to follow instructions and formalism in administration work;

4. Unfavourable moral and psychological atmosphere at school and society in general;

5. Lack of management of innovations that are to be introduced;

6. Lack of cooperation between teachers, pupils, parents and local governments in the interaction activities;

7. Insufficient level of organizational culture at school and the society in general;

8. Insufficient teachers' awareness of the latest tendencies in education in other European countries and the world.

6. Conclusions

1. Change or innovation is a continuous and dynamic process which has three basic phases: 1) initiation, mobilization or adoption; 2) implementation or initial use; 3) continuation, incorporation, routinization or institutionalization. The study of essential characteristics of change leads to the conclusion that they mainly pertain to effectiveness of innovation management, and that it concerns people more than the content: it changes people, but people also alter the change. Innovation involves the ability to change and adapt, and to find more effective ways of doing things.

2. Teachers' competences that will ensure effective management of innovative processes in education need support of teachers' development in two directions: in career-long learning that will empower them to critically think in order to improve their work; to develop research skills and skills in organizational development. What is therefore needed is a network infrastructure that will engage teachers in developing new knowledge, skills and attitudes through communication and collegiality. Apart from developing the capacity of thoughtful, critical analysis of their work, teachers need to learn to actively participate as individuals and as members of the school community to

establish strategies for improving innovations in education.

3. In the result of the analysis, the factors contributing to or impeding the introduction of innovation at school were formulated.

4. The effective management of change in Latvian education should be performed by a teacher-mentor as an active participant in the innovation process of education, and who effectively acts in the process of change within an organization that fosters learning and experimenting with innovation in order to improve the educational process and students' performance. Teacher-mentor's cognition needs an inter-disciplinary view, which complies with the principles of sustainable development, such view allows them to adopt and use new ideas within new educational environments and settings.

REFERENCES

[1] G. Bolton, 2005, Reflective Practice: Writing & professional development, 2nd ed. London, Great Britain: Sage Publications.

[2] N. H. Cohen, 1995, Mentoring Adult Learners: A guide for educators and trainers. Malabar, USA: Kriger.

[3] D.H. Cropley, 2009, Fostering and measuring creativity and innovation: Individuals, organisations and products. E. Villalba, Ed. Proceedings of the Conference "Can Creativity Be Measured?". Brussel, Belgium.

[4] M. Csikszentmihalyi, 1996 Creativity: Flow and the psychology of discovery and invention. New York, USA: Harper Collins.

[5] J. Davidova and I. Kokina, 2009, Latvia's teacher's innovative activity in contemporary conditions. Innovations and Technologies News, 1 (2), 21-36.

[6] Department for Innovation, Universities and Skills (DIUS), 2008, Innovation Nation. [Online]. Available: http://www.dius.gov.uk/reports_and_publications/~/media/publications/ScienceInnovation_web

[7] D. Duke, 2004, The Challenges of Educational Change. Boston, USA: Pearson Education Inc.

[8] R. Evans, 2001, The Human Side of School Change: Reform resistance and the real life problems of innovation. San Francisco, USA: Jossey Bass.

[9] K. Everard and G. Morris, 1999, Effective School Management. Patra: Hellenic Open University.

[10] R. M. Everett, 1983, Diffusion of Innovations. New York, USA: A Division of Macmillan Publishing Co.

[11] B.R. Guile and J.B. Quinn, Ed. 1988, Technology in Services: Policies for growth, trade, and employment. Washington, USA: National Academy Press.

[12] M. Fullan, 2007, The New Meaning of Educational Change. London< Great Britain: Routledge, Novak.

[13] R. Godon, 2004, Understanding, personal identity and

education. Journal of Philosophy of Education, 38 (4).

[14] D. Hopkins, M. Ainsow and M. West, 1994, School Improvement in an Era of Change. LondonGreat Britain: Cassell.

[15] Institute of Environmental Studies, 1999, Education for Sustainability. Integrating Environmental Responsibility into Curricula: A Guide for UNSW Faculty. The University of New South Wales.

[16] D. Kalniņa, Ē. Lanka, J. Davidova, L. Mackēvica and R. Burceva, 2010, Novitātes pedagoģijā profesionālās izglītības skolotājiem[Pedagogical Innovations for Teachers of Professional Education]. Rīga, Latvia: Latvian University (in Latvian).

[17] M. Kirton, 1989, Adaptors and Innovators: Styles of creativity and problem solving. London, Great Britain: Routledge.

[18] D. Koberg and J. Bagnall, 1991, The All New Universal Traveler: A soft-systems guide to creativity, problem-solving, and the process of reaching goals. Menlo Park, USA: Crisp Publications.

[19] A. Kuznetzova, 2010, Inovācijas augstskolu didaktikā: To loma izglītības un sporta speciālistu profesionālās kompetences veidošanā un attīstībā[Innovations in Higher School Didactics]. Scientific Journal of Riga Technical University. The Humanities and Social Science, 17.

[20] Latvijas Zinātniskās darbības likums, 2005,[Latvian Law of Scientific Work].[Online]. Available: http://www.likumi.lv/d oc.php?id=107337&mode=KDOC (in Latvian).

[21] R. Luecke and R. Katz, 2003, Managing Creativity and Innovation. Boston, USA: Harvard Business School Press.

[22] K. Morrison, 1998, Management Theories for Educational Change. London, Great Britain: PCP.

[23] Partnership and co-ordination East-West in the sphere of intellectual property utilization and innovative process development, 1997, Materials of NATO Workshop. Tashkent.

[24] P.A. Schumann, 1994, Innovate! Strait path to quality, customer delight & completive advantage. R.R. Donnelley & Sons Company.

[25] L. Spuhler and A. Zetler, 1994, Montana Teacher Support Program: Research report for year two 1993-94. East Lansing, USA: National Centre for Research on Teacher Learning.

[26] G.L. Urban and J.R. Hauser, 1980, Design and Marketing of New Products. New Jersey, USA: Prentice-Hall Inc., Englewood Cliffs.

[27] P. Wexler, 2002, Chaos and cosmos: Educational discourse and social change. Journal of Curriculum Studies, 34(4), 469-479.

[28] [I. Žogla, 2001, Didaktikas teorētiskie pamati[Theoretical Basis of Didactics]. Rīga, Latvia: RaKa (in Latvian).