

INNOVATIONS BUBBLES FROM “BOTTOM UP”

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Abstract: Innovations are self-renewable and they are bubbling from the bottom. The novelty is born where the place is convenient for the source of originality. Innovative people bring together old and new into fresh and clean motive (idea), and the product is normally full of the new energy. There is the motivation (motive and energy) for proactive working. The process of innovation is a process of transformation which is one of the three fundamental learning methods of changing the thinking system. The transformation has three phases: the first phase is growing an idea, the second phase is squeezing (compressing, transiting) the idea into the personal aim of doing (living), and the third phase is a birth of the new (novelty) which is the result of recognition on the ground of the old experience. This is the power or might for sensible living. An innovative project is the fundamental strategy for transformations for teachers and youth learn generations.

Key words: innovative society, self-renewal system, bottom up, innovative projects, Babushka system, self-regulation

The purpose is Innovative society

Innovative society is self-renewable (Gardner, 1995). It is interesting for all, for vibrant society, and it is free for an individual (Gardner, 1995). The Innovative society is respectful of the tradition which is considered us useful. It is not sleepy, passive society. It is a proactive in work and present in time. People try to put new and old together. The innovative society can develop the culture and balance into humanist oriented process of adaptation. People can appreciate learning approaches such as self-development, self-knowledge, free-organization, self-motivation, creativity, courage to fail and love (Gardner, 1995). Innovative society encourages the youth to transform (transit) from classical into innovative society by creating together knowledge and wisdom. The Slovenian Resolution facilitates youth and older citizens to develop an innovative society. For balancing (reaching the purpose) we have to use more flexible organization principles.

In the process of balancing - “swinging in life-adaptation” into more innovative society, we need more autonomy (liberalism and competences). This means that we have to have: personal security, time for exploring and reflecting, technical equipment, transfer of ideas and thoughts, references (measure) for assessing novelties, linking learning groups, encouragement, and feedback for learning development. This data were collected from reflection of three discussion groups: 1. Slovenian teachers in innovative projects in March 2009 (www.zrss.si), 2. Czech novice teachers from Masaryk University Brno in Litiya on June

2009 (Komljanc, 2009b), and 3. An experts group in ENSI poster-debate for develop sustainability in Leuven in April 2009 (Komljanc, Zajc, 2009).

The key factor for self-renewal innovative society is a mutual adaptation (Komljanc, 2009c). For reaching this aim, we have to enable more fluid thinking culture. For this purpose we have to use strategies and mechanism of real open learning environment (Bentley, 2007, Slavin, 1994). Open learning culture of communication could be reached and enriched by: positive climate, creativity, pedagogical (also didactical) principles, cooperation, and connection with industry, personal learning approach, and on outcome oriented learning with the performed competences (Komljanc, 2009c,d). These basic elements were mentioned in TIIM conference in Bangkok, 2009, and in DECOWA conference in Ljubljana, 2009.

We need to start with transformation of teaching methods for redesigning the classical “closed” school environment. This means that we need to start with self-assessment, self-evaluation, changing the learning and teaching approach, reducing goals in the national syllabus and connecting it with school-based one, and also with regional, and global curriculum; with real life, industry, and spreading well developed novelties around the world (Bentley, 2007, Komljanc, 2009d). Learning environment influences the student’s achievement when it enables innovative performance and creative products in process with time for individual improvement. Adaptation is intended in life-long learning, and in outcomes in personal curriculum of each student. In reality this means a transformation from reactive, corrective into proactive society. In learning approach (theory) this means the transformation from clear behaviourism into social constructivism with the appropriate combination of humanism and cognitivism (Leonard, 2002, Komljanc, 2009d).

Table 1: The self-renewal system of the innovative society

Innovative society by Gardner, 1995/Autonomy by Komljanc, 2009a	Personal security	Time for exploring reflecting	Technical/ Technological equipment	Transfer of ideas, thoughts	References, measure for assessing novelties	Linking learning groups	Encouragement	Feedback for learning development	Transformation of teaching methods by Leonard, 2002, Bentley, 2007, Komljanc, 2009d
Self-development	x								Self-assessment
Self-knowledge									Self-evaluation
Self-motivation								x	Changing the learning and teaching approach
Creativity			x						Reducing goals in the National syllabus
Courage to fail									Connecting with school-based curriculum
Love									Connecting with regional

									curriculum
Open learning culture by, Bentley, 2007, Slavin, 1994, Komljanc, 2009d	Positive climate	Creativity	Pedagogical/didactical principles	Cooperation	Connection with industry	Personal learning approach	On outcome oriented learning	Competences performed	Connecting with global curriculum

The self-renewal system of the innovative society brings together all elements of realistic life combinations. For instance: Personal security, which is one of the fundamental elements of the innovative society, could be attained by mutual adaptation where self-assessment is taking part in self-development and learning process which is showed as a positive climate in open learning environment. Or: Feedback for learning development could be reached by changing the learning and teaching approach where the role “It’s possible” in self-motivation process is showed in the performed competences. Or: Reducing goals in the National syllabus by creativity for constructing pedagogical/didactical principles can illustrate the technological equipment of what an innovative society has to have. Etc.

The framework of “open schooling”

The programs are more closely associated with the humanistic education movement of the early 1970 (Slavin, 1994). An open learning environment offers opportunities and choices. “Student as a tourist” uses different sources, tools, and content. In open learning environment, the possibilities for scaffolding, observing nature and working in labs can be found. Students are on the both sides of the counter (desk), they are learning, working, and also promoting. People are cooperative, so are the experts outside the school. There are possibilities for mutual conformation and reflections in real life. Open schools have an open planning system. Students are actively involved in deciding what and how they will study. There is a place and time for flexible learning and teaching process. Consequently, students can enrich their curriculum. In addition, open schools promote creativity more than traditional programs do (Slavin, 1994). An open learning gives opportunities to all students and at the same time the learners play an important role in learning. They could safely explore for adapting. They use formative assessment knowledge (Gardner, 1995, Slavin, 1994, Leonard, 2002, Komljanc, 2004e).

Nevertheless, there are some didactic barriers for open learning environment in Slovenian schools such as classical school grading, rigid school organization concerning the running of learning process, closed learning environment, classical forms of teaching, rare peer learning, classical formal parent associations (Teachers recognitions from NEIS research project about formative assessment knowledge 2006 – 2009 and Innovative projects 2004 – 2009, Komljanc, 2009a). The barriers could be a challenge for open learning. Reflection and different forms of formative assessment knowledge with efficiency feedback could help in the process of transforming teaching methods.

Table 2: Characteristics and barriers for open learning with possibilities for open schooling in Slovenia

Didactic characteristic for qualitative open learning (Aviram, 2000):	Didactic barriers for developing an open learning (from reflections in research-applicative project of Formative assessment and Innovative projects of NEIS, 2006 - 2009):	Some possibilities for open schooling in Slovenia:
<ol style="list-style-type: none"> 1. Safe discovering for adaptation 2. Flexible organization of learning 3. Enrichment curriculum 4. Cooperative planning, and outcome reflection 5. Cooperative learning and scaffolding 6. Active involvement in life 	<ol style="list-style-type: none"> 1. Classical school learning 2. Rigid organization of schooling 3. Closed learning environment 4. Classical forms of teaching 5. Rare forms coping with students 6. Formal forms of parents involvement 	<ol style="list-style-type: none"> 1. Safety learning instead of classical school assessment for sustainable knowledge 2. Flexible, not rigid schooling and learning 3. Rich instead of poor learning environment 4. Group planning and reflecting outcomes instead of classical teaching

Learning environment influences learning success (the third point in the table above). The more opportunities you have for getting multiple experiences, the more dynamic and intensive is the pedagogical communication between student and environment. There are more opportunities for questions and performing knowledge (competences). Because of that students are more motivated for contact with the real world. In open learning environment there are also more opportunities for communication with experts. Open school does not just get rich experience from the environment, but also distributes more interesting support to society (Bentley, 2007).

Open learning enables sensible proportion between “I’m learning” and “I’m learning with others”. Teacher who leads the classical schooling will not see the opportunities for group planning and neither for reflection values (the fourth point in the table above). Classical schooling does not give the opportunities for diagnosing the learning needs and interest of the student, and in that sense it does not give the possibilities for developing ideas for personal learning aim.

A teacher and a student form expected outcomes which direct the learning process. Flexible curriculum help learners in social learning group by combining the content, learning aims, methods and forms of work (the second point in the table above).

A teacher promotes free learning, respects students’ self-control and helps to improve students’ self-regulation. They use reflection for discovering new ways of learning. Teachers assess the students in the process of learning and help them by offering an appropriate sources and opportunities for self-developing (the first point in the table above).

Innovative projects for humanistic open education

Innovations are self-renewable (like the water circulation on the Earth) and they are bubbling from the bottom. The innovative way of modernizing schooling starts from the “bottom up” and is getting closer with the one from the “top down”. The fusion of both ways of modernization does not bring only school practice closer to the legislation and the theory but to the economy as well (Komljanc, 2009c).

The novelty is born where a place is convenient for the source of originality. Innovative people bring together old and new into fresh and clean motive (idea), and the product is normally full of the new energy. There is the motivation (motive and energy) for proactive working. Innovations are a part of the autonomous development. Didactic novelties are useful for both, students and professional workers. Firstly, students develop previous knowledge which thus leads to better learning success and secondly, they evolve professionally.

The process of innovation is a process of transformation which is one of the three fundamental learning methods of changing the thinking system. The transformation has three phases: the first phase is growing an idea, the second phase is squeezing (compressing, transiting) the idea into the personal aim of doing (living), and the third phase is a birth of the new (novelty) which is the recognition on the ground of the old experience. This is the power or might for sensible living.

Innovative Projects at the National Education Institute Slovenia (NEIS) are one of the most contemporary forms of improving curriculum, and in the same time, the most popular form of teacher's education. Innovative projects in schools and kindergartens facilitate a fluid thinking culture. Project work involves strategies of action research. Teachers use action circle with three phases: 1. Planning and getting a theoretical knowledge, 2. Acting and assessing, collecting evidence and examine new theories, 3. Reflecting (evaluating) cognition and experience. Teachers build novelties by constructive learning and teaching philosophy of social constructivism by Vygotsky. Complete model of project work is used to improve the pedagogical tradition (Komljanc, 2008a). The value of Innovative projects can be confirmed by the interesting “Kaizen” theory of innovation and fifty years old Slovenian motto by Primož Trubar: ”To stand and withstand”, which is the vision for sustainability.

The aim of Innovative Projects is to adjust the educational indicators of innovative self-development. The professional workers have legal support for modifying the classes and other school activities. Activities and the results of the project are contained in the annual work plan of the educational organization and are presented on their web pages as well as on the National Education Institute Slovenia's web page.

NEIS consultants take part in preparing an action plan, realizing pedagogical activities and assessing novelties. The consultants also direct project groups towards the interpretation of didactic novelties and link useful knowledge or principles into the education system.

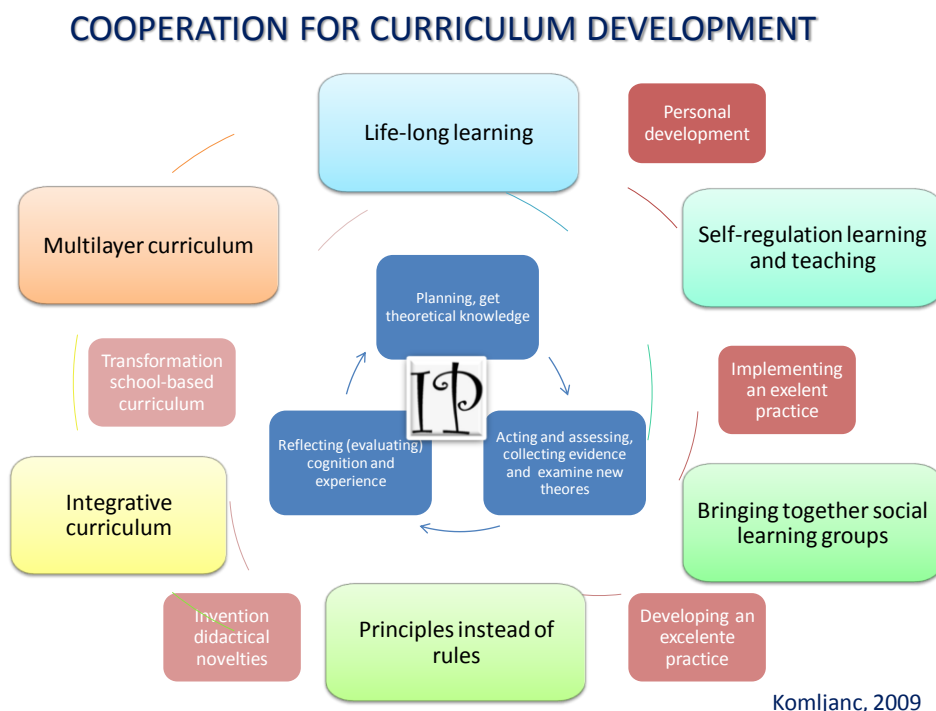
The project group defines their research question and aim of the research on the basis of one level of innovative development. The group can choose between five levels: 1. Personal

development, 2. Implementation of an excellent practice, 3. Development of an excellent practice, 4. Inventing didactical novelties, 5. Transformation of the school-based curriculum. Each level uses its own methodology of developing didactical novelties (Komljanc, 2008a).

When the researchers of their own practice need common strategic guidelines, the consultants offer them the basic didactic principles by using a simple, economic and humorous approach. These principles are already efficient as independent elements but they are even more efficient when interconnected. The pedagogical principles are connected in “Babushka system” (Komljanc, 2008b). The basic principle is a self-regulation of learning and teaching, which is reinforced by the principle of bringing together the social learning groups. Using both principles cuts down the implementation of norms and rules to a minimum and even more, if the holistic and multilayer curricula (personal, executive, regional, national, global) are flexibly organized and creatively actualized, so the teachers and the students can experience the benefits of life-long learning and develop their personal competences, considered as a condition for the development of the society (Komljanc, 2008b).

Mutual reflections and presentations of the novelty development encourage, inform, connect and upgrade achievements. The form of upgrading the curriculum from bottom up is close to the teachers and is both interesting and useful. And as far as the students are concerned, it is also relevant, realistic, and functional (form) which breaks the school monotony of classic learning and questioning. The innovative projects can be considered as a movement for reorganization of the Slovenian school system in a modern and alternative way. The variety of different approaches and the teachers’ enthusiasm enable open and liberal forms of formal education. The novelties that have been carried out so far can be seen on the NEIS’s web page www.zrss.si.

Table 3: A map of the alternative innovative changes curricula in Slovenia:



Reflexion of open education

The innovative projects have become a part of tradition of the pedagogical renovation in Slovenian schools. In the last decade, the innovative curriculum is more and more interesting for our teachers and students. The needs and contents of modernization show that each project team creates a more efficient pedagogical communication in its own way. Thus, we find that more and more practitioners are aware of three pedagogical challenges, transformations of three classical didactical paradigms, namely (Komljanc, 2009c):

1. innovative transformation of the classical curriculum with innovative open and flexible curriculum,
2. innovative transformation of the classical differentiation (separating) of learning with innovative forms of bringing a student and a teacher closer with the social learning groups and
3. innovative transformation of the classical individualization of learning (the learning plan of an individual) with learning and teaching (lessons) where school develops prior knowledge with the so-called personal curriculum (programme) of the individual student and teacher in the social learning group (more: <http://www.zrssi.si/>).

In the 90's, teachers developed the learning methods, later instruction strategies followed. In 2004, they were more oriented towards pedagogical communication between a student and a teacher, and towards the feedback in dialogue. They tried with reciprocal (mutual) teaching-learning approach and self-evaluation. Teachers developed integrative school-based curriculum in team work. In 2006, they were more oriented towards didactical principles and towards developing their own personal career. In 2008, they were oriented towards self-motivation and self-regulation in learning process. They were researching what the personal curriculum actually is. Teachers found connection between personal curriculum and student's expected outcomes. Mutual adaptation was even more interesting didactic approach. This element influenced integrative curriculum approach. Teachers were interested in climate in the class, in coping with parents, and in creativeness. A movement for more effective schooling was started. In 2009, self-regulation in the learning process by open learning environment was modern (Data from Innovative projects year-reports, www.zrssi.si).

More and more project groups developed the fourth and fifth novelty level: inventions and transformation of the educational program. They developed concepts of coping and scaffolding. They try with integrated and multilayer curriculum. They invent new models of bringing students together in social learning group. They are most innovative in searching for the forms of self-regulation in the learning process (evidences are on: www.zrssi.si).

The practical experiences show that in the case of innovations which originate and develop as a preventive measure the motivation is higher and positively oriented; therefore, the outcome is more innovative than in the case of innovation which arose on the basis of curative problem solution.

Benefits of participation in Innovative Learning Environments by Innovative Projects

Schools: The schools are autonomously opening to the world and consequently, ameliorate the quality of class activities. They dedicate their time to the development of the school-based curriculum intentionally and systematically by integrating cross-curricular areas and students' and teachers' personal recognitions into already existing lessons. The school intentionally integrates possibilities from the environment which enable the everlasting (sustainable) knowledge and constant desire for learning and participating in the society (Komljanc, 2009e).

An opened school is meant for everybody. It follows and develops the students' pre-knowledge. Conversation in class is more than welcome. Since it is guided, it can lead to new ideas, personal goals and recognitions. A liberal open learning enables a flexible class organization for a multi-way communication. The innovative possibilities of the open learning environment are the following: safe (self) education and learning, flexible class activities, pedagogic communication for mutual encouragement by learning in home environment (Aviram, 2000).

By opening the learning environment, a school clears away the obstacles of the classical schooling. A flexible organization of a class activity enables differentiable learning dynamics of an individual in the social learning group, the combination of contents and learning goals as well as the class methods and class forms; besides, it makes it possible to use different learning and teaching sources and the sources of knowledge assessment (Komljanc, 2009e).

Teachers: Teachers systematically develop the quality of teaching. Therefore, they are constantly improving their knowledge. They publicly show their didactical experiences to their colleagues and in this way they built their own career. By doing their pedagogical work, they develop the competences of a learning teacher, cooperative co-worker in different expert groups, self-initiative creator of the executive curriculum who is able to help students develop their competences and is capable to identify the student's needs and to support their autonomous learning.

They also develop the competences of a reflective practitioner and autonomous researcher of his own practice who is implementing the measures of the excellent practice (Buchberger and others, 2000, OECD teacher competences, 2005). A teacher learns how to prepare, organize, and make up interesting learning environments which are attractive to a student as some kind of "teaching magnet" (Komljanc, 2009e).

Students: Learning environment influences the learning outcome. The more possibilities there are for gaining different experiences and contacts with others, the more dynamic and intensive pedagogical communication between the student and the environment is and there are also more opportunities for questioning and demonstrating what one has learned and for introspecting as well as for thinking about a certain subject with others.

Productive learning environment enables contacts with the real world as well as inclusion in finding solutions to problems from everyday life. This is why the students and parents are more motivated to research and compare, thus the contents are more relevant. There are more possibilities to get into contact with experts and other people who have a wider spectre of knowledge. A student has more opportunities for interaction with the world and consequently more courage, self-confidence and willingness to cooperate in multi-way communication. The open learning environment enables the students to show their knowledge, to create referential knowledge measurement, to look for divergent solutions, to gain holistic knowledge, to exchange the knowledge with other students in different environments and to become a learning traveller (student tourist) (Komljanc, 2009e).

A student can independently regulate his learning and propose different forms of cooperation between teachers and other participants in a learning process. The opened forms of learning enable logical relation between “*I learn*” and “*I learn with others*”. By the systematic planning of a lesson and activities to follow and a constant evaluation of the experiences, a teacher and a student develop the more appropriate dynamics of the pre-knowledge development, introspection and thinking with others.

The innovative learning environment develops the stimulative learning culture and the capability of communicating with oneself, schoolmates and others. A student communicates with different sources, he/she observes, compares and adapts to the new cognitions. Not just the school itself but also the entire living environment is a place to socialize and bring together an individual with the whole group in a multi-cultural environment, since our learning is based on things we have already perceived and experienced. The more students, teachers and parents are opening to the environment, the more efficient is the students’ and teachers’ personal curriculum and at the same time it corresponds more to the school-based curriculum (Komljanc, 2009d,e).

The students are becoming more and more competent in interaction, languages, the use of functional knowledge, problem solving, autonomous operating, searching for information and data, thinking and motivating oneself and others. They are also more capable of reflection, empathy and solidarity (Cabezudo and others, 2008, Komljanc, 2009e).

Parents and other adults in the environment and the society: Students are not just learning for the future but they are actively participating in research and promotion of their own knowledge at the present time. The contact with generations and events in the environment is less stressful and unusual if this kind of challenge is constant and stable. If different target groups are used to cooperate with each other then their expectations are higher and higher and as a consequence so are the work results. A student gains the lasting knowledge by experiencing everyday life and that is why it is vital for the student to be actively included in the environment (Bentley, 2007).

Besides the teachers, students’ parents are one of the sources of restoring the contact with the environment. The experiences through which parents can observe their children learn how to interact with others are interesting for both students and parents. In this way, the parents get a realistic image of the development of their child’s pre-knowledge and at the same time the experiences enable the open learning forms, opened and direct contact and cooperation in a learning process within the home environment.

Parents not only help with the socialization of a child but they make suggestions about the contents and forms of, for instance, the regional curriculum on the basis of their own experiences. Parents help open the school and bring it closer to a home, families and economy in a most rapid and realistic way (Komljanc, 2009d).

Recognition about Innovative Projects in Slovenia

The Innovative Projects are traditional quality in education. Quality is a condition which gives an opportunity for continuing improvement, and at the same time it gives an opportunity to become a novelty deeply rooted into the old method which sustainability is. Sustainability gives the feeling of firm, everlasting, protection, and benefit. Innovative projects are synonym for quality. They are the oldest driving of excellence: “Innovative projects for excellence education.”

Innovation project are beneficial not just for an individual, but also for institution and society. By personal development, an individual contributes to the social growth. Teachers develop didactical novelties. Learning and teaching is mostly actualized by pedagogical communication. Researchers of their own practice develop their relationship in the learning process. Teachers are moving away from behaviouristic learning and try to be effective in social constructive dialogue which is enriched by humanistic and cognitivistic learning theory.

Project groups cope in nets because of the interest and content or in region. Project is born thanks to the initiative researchers in practice who feel needfulness or higher expectations. In the process of innovation they get help from counsellors. Advisers develop their job by studying, discussing and interpreting (tripartite advisory approach). They give systematic, considered scaffolding. They do not want to render the improvisation in the creativity of achievement.

Project work and action research is useful for curriculum development and teacher’s training. Level of taxonomy shows the innovators’ course of developing novelty. A holder of idea can better define the research question, the aim and expected outcome and because of that they are better in find the appropriate strategy resolving the problem.

Transformation across Innovation

The Innovative projects are the basic form of modernizing the curriculum. They are the fundamental strategy for transformations for teachers and learning youth generations.

The best pedagogical solutions (goodness) create constructive professional “chat”. Reflections in action research help become and stay better (KIZEN theory). The youngest children in kindergartens are the most active partners with teachers. Together, they create the learning (living) programme. On the other hand, students in upper-classes want to have more autonomy.

The main difference between the school of the 20th and the 21st century is not just discovering new theories of learning and teaching but the cultural enriching, refining performance curriculum with personal life in the living environment, with the living environment being expanded by moving persons, information, ideas, products and innovations (Komljanc, 2008b). This is why the future of learning and teaching will direct itself not only to the contents but also to the strategy of changing and presenting and evaluation of achievements as well. Novelties are bubbling from the bottom.

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