DRAFTING A MODEL TO PROMOTE CREATIVITY, INNOVATION AND ENTREPRENEURSHIP AMONG SLOVENIAN PRIMARY SCHOOL STUDENTS

Borut Likar,
University of Primorska, Faculty of Management, Cankarjeva 5, 6000 Koper, fax: +386 1 2839055 e-mail: borut.likar1@guest.arnes.si.

Franc Cankar,
National Education Institute, Poljanska 28, 1000 Ljubljana, fax. +386 1 3005199, e-mail: franc.cankar@zrss.si

Blaž Zupan,
Faculty of Economics, Kardeljeva ploščad 17, 1000 Ljubljana, Slovenia, fax: +386 01 5892 698. e-mail: blaz.zupan@ef.uni-lj.si.

Abstract: Regarding the innovation and economic results the Slovenia is lagging behind most developed economies. One of the important reasons is connected with the educational system. Therefore, we have developed a model for the sustainable promotion of creativity, innovation and entrepreneurship among primary school students. We have deliberately not proposed a strategy for the complex revision of the curriculum. Even though it would be necessary, it is clearly impossible in Slovenia at the moment. Therefore we have focused on the minimalistic approach and thus feasible in the current environment.

The presented model is based on three forms of the internationally accepted educational activities. Each of the three sets of activities has work guidelines founded on our concept. We believe that the introduction of these guidelines will help to improve the creative, innovative and entrepreneurial competencies of the youngsters. In the time of economical crisis it should be stressed that the proposal does provide immediate financial effects, but it represents an important and socially responsible investment in a long-term.

Keywords: innovation, creativity, entrepreneurship, primary school, social responsibility

1. Introduction

The current global economic crisis has shown that Slovenia lags behind most other regulated and globally competitive countries according to numerous indicators (EIS, 2006, Glavič, 2011), several of them closely connected to innovation capabilities of the economy (Mulej, 2008; Likar et al., 2011). The studies also revealed the lack of adequate strategies and policies to improve the situation. Recently, attention has been directed toward the education system, which must become more open and connected to life, with a view to promoting creativity, innovation and entrepreneurship among the young. The majority of EU member states strive to provide young people with more innovative, entrepreneurial and creative incentives representing a significant factor of social
responsibility, which can influence the society in different ways (Mulej, 2012). It is vital that schools encourage the development of empathy in young people in order to improve their social responsibility. Diverse, carefully structured goals and approaches to the promotion of creativity and innovation should be introduced at various levels of education. These may include:

- promoting the development of personal characteristics relevant for innovation and entrepreneurship;
- offering early knowledge of and contacts with the business world;
- raising awareness of self-employment as a possible career for students;
- organising activities based on learning while working: e.g., students running mini-companies; and
- providing specific training on how to start a business (especially in vocational or technical schools and at university level) (Final Report, 2002).

Creativity, innovation and entrepreneurship cannot be taught simply. An appropriate environment must be created to generate new ideas and awaken. This can be achieved through integrative learning, which enables problem-solving in realistic and authentic situations. Such processes boost self-confidence, build competencies based on personal resources and improve the bias toward action. If our goal is to encourage the development of innovation and entrepreneurship, then schoolwork may not be separated from the local community and the production process. But producing ideas is just the first step. They must be developed, solidified, launched and eventually marketed (Likar 2004, 2007). Talent and determination are not sufficient; an individual needs additional knowledge in order to succeed. In the model we advocate, students try to translate their creative ideas into useful results by means of the entire invention-innovation process, which involves thorough knowledge of certain phases and procedures that they can learn if properly instructed.

Slovenian schools, students and teachers are certainly not devoid of ideas: there are plenty of organised external incentives for the development of creative and innovative processes in students. Nevertheless, research findings (Likar et al., 2006; Lavrič et al., 2010; Mrgole, 2012) clearly indicate that schools, teachers and students are aware of neglect in this area of the educational system. This means that improvements in the curriculum could help the young to internalise creativity and innovation and encourage the incentives to connect with the environment (Cankar et al., 2011). It is evident that an incentive is necessary to bring together schools and the latest findings on teaching creativity, innovation and entrepreneurship so as to enable and boost the creation of good practices which would meet the following criteria:

- being compatible with the existing conceptual starting points in education;
- being part of the school system which has clearly defined goals;
- adopting a friendly and user-oriented approach;
- being sustainable; and
- having identifiable and measurable results.

2. The model

This model is established on several internationally recognised concepts, three of which are presented below. The first is the concept of creative thinking, which has been developed in recent decades by De Bono (2006). It is built on the assumption that creativity and lateral thinking can be taught using a number of concepts and techniques which are applicable both in companies and in teaching.

The second concept is known as “design thinking,” which is a scientifically accepted pedagogical method (Hasso Plattner Institute of Design, 2011). It focuses on the techniques through which young people can learn how to solve problems in interdisciplinary groups by means of creativity and prototyping. The concept is based on the development of processes, services or products which aim at either solving specific issues or at least at making the process faster and cheaper. The work is carried out in schools and advances by stages. Teachers from different disciplines and local community representatives participate in the process.

The third concept is a result of more than a decade of work by Slovenian authors who developed a holistic concept entitled “From Mass to Excellence” (Likar, 2004). The model, based on modern concepts of creativity and open innovation (Chesbrough, 2003), was developed and tested within the framework of several national and international projects. It takes into account the socioeconomic, cultural, historic and social reality of Slovenia. The integral part of the concept involves qualified teachers/mentors, parents and local or national actors participating in the innovation-
entrepreneurial process. One of the important elements is the training of teachers who are able to develop students’ knowledge and competencies, understand them and their goals, and offer all the necessary support. In this model, the student is the centre of attention. Students first acquire knowledge and competencies. At later stages, these are applied to concrete projects to creatively tackle concrete problems or challenges (Likar et al., 2006).

Another important concept was developed as part of the project entitled “Implementation of a comprehensive programme for encouraging creativity, innovation and entrepreneurship of the young through integration of the programmes into the activities of local communities from 2010 to 2012” (UPI, 2010). This was based on many years of activities in the Chamber of Craft and Small Business system at the local level.

The model we propose is not designed as a single activity, but as a structure connecting three similarly oriented activities: an entrepreneurship club, an elective subject entitled “Innovative Problem-Solving” and training for teachers and headmasters. Each of these activities has a different status and a different position in the curriculum and can be carried out independently. They share the following objectives:

- to develop knowledge and skills related to the creative and innovative;
- to develop personal competencies necessary for successful implementation of ideas;
- to encourage the development of inventions and innovations,
- to acquire experience in developing new solutions; and
- to acquire experience in cooperating with the economy and the local environment.

2.1. Innovation club

The key objective of innovation and entrepreneurship clubs is to prepare primary school students and teachers for creative and innovative work. Teachers acquire new knowledge and competencies that will assist them in nurturing creative and innovative youth in the future. Concrete knowledge and methods presented to the participants help create conditions for a new way of thinking and working in the modern era. The teacher needs to be creative, must demonstrate empathy with students and their ideas, and should be tolerant of divergent thinking. The participants acquire the following key competencies:

- acknowledging the significance of knowledge and innovation for the society, school and themselves;
- acknowledging the significance and the role of the school and the teacher in developing innovative environment;
- ability to identify challenges, develop solutions and use the methods while putting inventions into practice;
- ability to prepare and carry out an innovative teaching programme;
- ability to understand the students, identify their creative potential and to transfer knowledge/competencies to them;
- ability to develop new ideas and plan the realisation of those ideas;
- ability to work as a team and adapt to the group;
- combine different school subjects to facilitate that realisation; and
- ability to promote inventions and innovative projects.

The innovation and entrepreneurship club can be part of all three triads of primary schools, with a view to encouraging innovation and entrepreneurship in children from an early age. The problem is that each of the triads does not conclude as a coherent whole, but enables progressive expansion of knowledge and competencies of students. This concept is reasonable if it will be implemented throughout the triads of primary school.

It is vital that mentors first undergo a uniform training and acquire all the necessary information on how to guide the process. It is best if a school starts the club at the beginning of the year so as to include it in its publications and schedules. At the end of the school year, students organise a presentation of their projects either as part of school activities or at special events.

2.2. Elective subject

This activity primarily aims at promoting creative and innovative problem-solving as a universally applicable skill, and one that is at the core of entrepreneurial thinking and acting. It brings about a systemic change which is a long-
term and sustainable solution to incorporating creative and innovative incentives into primary schools. This elective subject is also a good complement to the existing activities, e.g., entrepreneurial clubs and other structured activities which encourage innovation and entrepreneurship at all educational levels.

This proposed activity is based on the decision of a primary school to carry out a programme within the framework of the elective subject “Innovative Problem-Solving”. Elective subjects are offered in the third triad of primary school (slight amendments to the Elementary School Act also envisage optional elective subjects in the first two triads) and are part of the school curriculum.

Prior to the initiation of the elective subject, the teacher in charge must undertake obligatory training (a module in the educational catalogue). A school offering an elective subject establishes contact with external partners from the local community (economist, business consultant, entrepreneur, innovator, etc.). It is particularly advisable to include parents who are running creative, innovative or entrepreneurial businesses.

The skills and personal characteristics of young people—e.g., the ability to identify problems and opportunities, creativity and lateral thinking, innovation, critical thinking, empathic actions and problem solving—are crucial for encouraging creativity, innovation and entrepreneurship. Learning these skills is difficult and, as a result, they require an approach that diverges from the existing models. Numerous authors have already conducted research on this matter (Gibb, 2002, 2006; Katz, 2008; Neck & Greene, 2011) and formulated suggestions on how to change the paradigm of teaching entrepreneurship (Rasmussen & Sorheim, 2006; Neck & Greene, 2011). It is evident that classic administrative and entrepreneurial approaches, as well as the use of business plans, fail to deliver satisfactory results when encouraging the development of creativity and innovation in young people, and particularly primary school students (Honig & Karlsson, 2004; Garavan & O’Cinneide, 1994). The authors thus focus on encouraging creative problem-solving (Martin, 2010; Meinel & Leifer; 2011; Kelley, 2005) which is universally applicable, but nonetheless at the core of entrepreneurial thinking and work. This is particularly crucial for students, which is why design thinking (Rauth et al., 2010) is assuming dominance in primary and high schools (Carroll et al., 2010). Design thinking means identifying actual problems or needs of an individual or the society and finding a concrete solution to the problem. This approach is holistic, which is also its main advantage: it incorporates the human aspect as well as the technological and business aspects of problem-solving and uses relevant technical and business tools and skills. This approach is user-centred and action-based. It encourages transfer of knowledge from all disciplines relevant to the problem (Brown, 2008).

2.3. Training for mentors and headmasters

Experience suggests that, even when they have an excellent idea, young people have difficulties attaining the innovation phase without support of a trained mentor: they often fail to advance beyond their idea or research results (Likar, 2004). To alleviate this problem, we include a programme intended for pedagogical workers, school leaders and those wishing to become acquainted with the innovation process, improve their own work and transfer their innovation knowledge and competencies to the young. The programme, which ensures sustainable and socially responsible work, consists of several integrated parts. The participants first learn about different approaches for motivating students; an optimal personal form of communication with students; and the significance of innovation for personal and social development of themselves, the students and society.

In the next phase, the participants are informed about the invention-innovation process, which is the foundation of every innovation process, be it an innovative approach to teaching or innovative activities involving young people. The process begins by identifying opportunities. Potential solutions are developed by means of creative thinking methods. Adequate methods are used to evaluate the solutions and further them through research and development work so as to reach the phase where the solution becomes applicable.

One part of the training deals with the innovation process from the perspective of the teachers. Teachers must be creative in order to encourage creativity in their students. For this reason, innovative teaching methods, appropriate teaching resources and different approaches are necessary to achieve the goal: a creative, motivated and innovative student. It is also important to present the models for encouraging innovation and entrepreneurship in education with modern concepts which have become widely used abroad and in some Slovenian institutions. In this component, teachers become aware of opportunities to cooperate with domestic and international actors, including parents, the local environment and related or complementary organisations at home or abroad. Key objectives of the educational programme are:
• to become familiar with the model of emotional effectiveness and approach to motivating students on the basis of their value system;
• to develop an optimal personal form of communication with students;
• to grasp the significance of creativity and innovation for an individual, schools and society.

3. Conclusion

The model presented above comprises three related activities: an innovation club, an elective subject and training for mentors and headmasters. All pursue the same goal, which is to increase the innovative and creative capacity of students. There have been demands for innovative change in the Slovenian educational system for the past decade, but the structures in place have had minimal results. Our model aims to tackle the problem differently. We realise that a complex strategy for the revision of the educational curriculum is impossible in Slovenia at the moment. As a result, our proposal is takes an almost minimalist approach, and is thus feasible in the present environment. It is nevertheless comprehensive and based on modern concepts which have been at least partially tested at home and abroad.

4. References