

Schools and Promotion of Innovation

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Abstract

The global economic crisis has demonstrated that Slovenia is lagging behind the more organised and globally competitive states as measured by a number of important indicators, and has exposed its lack of adequate strategies and policies to improve the situation. This paper presents findings on the work of enterprise circles and the current state of Slovenian primary schools in respect of the promotion of creativity, innovation and entrepreneurship. It examines those factors within schools and the broader local environment that can promote or hinder the development of creativity, innovation and entrepreneurship among pupils. The objectives are clarified by research approaches that connect empirical data to those social circumstances that affect how the issue is understood and how stakeholders explain it. The findings indicate a lack of awareness of how important it is to create links between the education system and the labour market. Teachers who have participated in activities to promote the development of creativity and innovation are more critical of their schools, while pupils still find it difficult to express themselves differently within the school system.

Key words: *enterprise circles; primary school; pupils; teachers*

Introduction

The global economic crisis has demonstrated that Slovenia lags behind the more organised and globally competitive states as measured by a number of important indicators (EIS, 2006; Glavič, 2011). Many of these are closely connected to the economy's innovative capacity. In 2011 alone, Slovenia fell 12 places on the Global Competitiveness Index ranking (Global Competitiveness Report, 2011). It was one

of the steepest falls of any country listed. Even though it is listed as an innovation-driven economy, Slovenia lags significantly behind most other innovation-driven economies in terms of the innovation sophistication factor, as well as in the quality of the educational system. This has exposed a lack of adequate strategies and policies to improve the situation, and has focused attention on the educational system for young people, which needs to be made more open and more relevant to life. Creativity, innovative capacity and the search for new solutions are skills that are increasingly sought after in the labour market. What is the use of knowledge, or better results gained in school compared to peers in other European countries (cf. results of TIMS, PISA studies), if individuals cannot integrate or apply it in an innovative or enterprising manner? Acquired knowledge therefore only represents a potential that has not been embedded in creative effort.

The need for broader-based and more ambitious innovation policies and entrepreneurial action among young people is stated in numerous European and global documents of today. Emphasis is being placed on this more than ever before; this is because creativity and innovation are, and will remain, drivers of social development. Florida (2002) even writes of societies moving from the information age to a 'creative society', while Salkowitz (2010) states that there are three main factors that will influence the transformation of society in the 21st century: young people, ICT (information and communications technology) and entrepreneurship. Educating and motivating young people to take initiative at all levels of the educational process is therefore a vital part of lifelong learning, and is becoming an important part of general human knowledge. Most EU countries are therefore working to ensure that more innovative, entrepreneurial and creative initiatives are aimed at young people. A wide variety of measures have been introduced to achieve this, with varying degrees of success.

Educational institutions do not have influence over the business environment, nor do they have the resources necessary for developing entrepreneurship. Despite this, they can encourage young people to think about and understand the connections between individual elements of the micro and macro levels of entrepreneurship. They can teach them creative and innovative patterns of behaviour, and support them in acquiring experiences in that field. Although the objectives and methods of promoting creativity and innovation differ according to the education level, recent studies (Kourilsky, & Carlson, 1997; Gibb, 1998) have indicated a need to include high-quality innovation and entrepreneurship-related content in the educational system. The relevant skills can be developed in the earliest school years (Kent, 1990; Chell et al., 1991), but they remain most closely linked to personality traits developed during the socialisation process that young people undergo.

Creativity and innovation cannot be taught: what creativity requires is a suitable environment that promotes the formation of new ideas, curiosity and innovation. Burke (2007) states that 'if creativity is difficult to define, one certain thing is that it is possible to create the conditions in which creativity is more likely to thrive.' This

occurs, in particular, in integrated forms of learning that facilitate problem-solving in realistic and authentic situations. This process strengthens self-confidence and builds skills based on individual, personal resources; it also improves engagement in practical action. If we wish to promote the development of innovation and entrepreneurship, then school work cannot be separated from the local community and the production process. Of course, encouraging pupils to develop new ideas is only an initial step. Good ideas must also be developed, made tangible and put into practice – and perhaps one day also marketed (Likar et al., 2004). This involves pupils attempting to pass creative ideas along the entire invention and innovation chain to the point where useful results are produced that might also be of interest to others. This develops entrepreneurial skills, which is not an absolute ability independent of the context of work and life (Svetlik, 2009). The highest level of individual skill is demonstrated in managing or overcoming new or different conditions.

Studies (Ferrari et al., 2009; Chell, & Athayde, 2009) have shown that innovation is an activity that can be taught, like any other activity. Here, teachers can play a key role, but they themselves require institutional support if they are to encourage their students to become creative and innovative. Unfortunately, the system of continuous professional training still frequently focuses too heavily on classic school subjects (Selinger et al., 2008), the range of interdisciplinary topics is limited, and teachers themselves believe that they are insufficiently qualified to address cross-curricular topics and make links between different areas of knowledge in their work (Saunders et al., 1995; Kerr, 2000). Primary emphasis must be given here to the training of teachers to cope with changes, particularly in relation to the circumstances and support mechanisms that foster creative learning and innovative teaching.

Companies and organisations are also aware of this, since they understand that in order to be innovative in the environment in which they operate, they need the support of the local community to provide sufficient incentives and entrepreneurial challenges to allow young people to form their ideas into projects that relate to various fields of life within that local community. At the same time, companies that invest in youth innovation are aware that these young people represent potential future recruits. Despite the fact that creativity and innovation among young people can be developed at an early age, policy in Slovenia directs considerable resources into the development of economic innovation and competitiveness, in the conviction that this will reap easier rewards. In terms of the planned and systematic promotion of creativity and innovation, and related entrepreneurial thinking, young people remain sidelined.

It would be unfair to claim that Slovenian schools do not have ideas; they certainly do have organised external initiatives to develop creative and innovative processes among pupils. Despite this, the findings of the *Mladina 2010* research project (Lavrič, 2010) indicate that young people are conscious of the specific shortcomings of the educational system in this area. This means that the required improvements to the curriculum could have a positive impact on the ability of young people to internalise

creativity and innovation, and could also encourage initiatives that create links with the local environment. There is clearly a need for initiatives that work tangibly to place schools alongside the latest developments in the teaching of creativity, innovation and entrepreneurship, and therefore create and strengthen a field of best practice.

A project took place in eight Slovenian regions in 2010 and 2011 to promote creativity, innovation and entrepreneurship among young people, organised by the Slovenian Chamber of Trades and Small Businesses.¹ The purpose of the two-year project was to train teacher-mentors, who would then train pupils and run projects with them and with local community representatives (entrepreneurs, innovators, etc.) in 'enterprise circles'. The overall plan was based on a classic concept of innovation and entrepreneurial development. The work process was focused on several interconnected stages: problem-definition, observation, acquisition of ideas, prototype production and implementation. The work on the selected idea developed by the school project group took place in a flexible but progressive manner. Outside collaborators and teachers of other disciplines were involved as the project stage demanded. After a year's work, the project group was able to present quite a large number of interesting products and services.

Methods

As part of the project, the authors evaluated the work of the enterprise circles and made an assessment of the state of creativity and innovation promotion within Slovenian primary schools. The authors were interested in finding out which factors within the school and broader local environment promoted or hindered the development of creativity and innovation. This included the positions taken by headteachers, teachers and pupils in relation to creativity and innovation, and the level of quality of providing innovative teaching within the narrower school environment and the consequent promotion of creative learning processes. The range of processes available to young people within the broader local environment that allows them to function well along the entire invention and innovation chain is also very important, as is the quality of those processes. The objectives of the evaluation were as follows:

- to monitor the work of the enterprise circles and analyse their strengths and weaknesses,
- to determine the level of cooperation between schools, institutions and individuals, and to identify those factors that promote or hinder the development of creativity, innovation and entrepreneurship among primary school pupils,
- to determine whether differences existed between the positions taken by the group of teachers that participated in the project and a randomly selected control group of teachers,
- to determine which factors and people encouraged pupils to create new ideas.

¹This paper is part of a project entitled 'Implementation of an Integrated Programme to Promote Youth Creativity, Innovation and Entrepreneurship Through Integration with Local Community Actions – 2010 and 2011', led by the Slovenian Chamber of Trades and Small Businesses.

The first objective involved an examination of the 'diaries' kept by enterprise circle mentors. The entries were reviewed and analysed, and the definitions and characteristics that most comprehensively and succinctly described the course of the enterprise circles' work were linked together.

The second objective was tested by researching the opinions of primary school headteachers. A total of 153 headteachers participated in the study via an online questionnaire; the aim was to identify those factors that promoted or hindered pupil creativity, innovation and entrepreneurship and to determine the level of cooperation existing between schools and institutions and individuals from the local environment. The statistical significance of the differences was tested using an appropriate t-test. Once the empirical research results were known, interviews were organised with five headteachers and five entrepreneurs to supplement the empirical findings. The interviewees were selected from urban and rural areas. The authors were interested in the headteachers' opinions on the reasons for unsatisfactory cooperation between schools and the business environment or other schools. The data was processed to provide descriptive and comparative analyses. The responses from headteachers and external collaborators gathered from the interviews are described in the results section. Only the responses that best define the research problem have been selected.

For the third objective we tested whether a sustained period of involvement by teachers in leading enterprise circles had changed their views on creativity and innovation. We surveyed 100 teachers (mentors) who had led an enterprise circle for a year, along with a control group of 142 randomly selected (other) teachers. Both were questioned using a printed questionnaire which recorded teacher responses on the following topics: their positions on creativity and innovation; the use and role of ICT; study and the role of pupils; education and professional training; curricula and syllabuses; the school environment; the support environment; and reasons for participation in innovative work. The statistical significance of the differences was tested using an appropriate t-test.

The fourth objective covered testing pupils' views on which factors and people encouraged them to produce new ideas. A printed questionnaire was used for this purpose. The study included 190 pupils from the third primary education stage who had participated in the one-year training offered by the enterprise circles. There were 81 boys and 108 girls, with one respondent not stating their sex. Pupils from 19 primary schools were surveyed. Most of the pupils were from the eighth grade (89), followed by the seventh grade (75), with a smaller proportion from the ninth grade (26). The data was processed to provide descriptive and comparative analyses. Once the results had been gathered, a group was selected from two schools and the members of each group were interviewed individually. The aim was to identify the reasons why pupils found teaching in school less stimulating than the enterprise circles for the formation of new ideas.

Results

The results are presented separately for each group of participants. They are set out by individual objective and presented via tables, figures and diary entries. The paper presents a selection of elements from the research work.

For the first objective, diary entries made by mentors and outlining the course of enterprise circles are presented. The entries are categorised as follows: assessment of the effectiveness of enterprise circles, the strengths and weaknesses of enterprise circles, and cooperation with representatives of the local community. Only those entries that best highlight the research problem are given below:

‘Work with pupils in the enterprise circle is good. It revitalises the routine work of normal lessons. This goes for me as a teacher, as well as the pupils. Certain phases are a little too rigid and administrative. For example, when we prepared the business plan, the pupils were not particularly motivated, and had not yet really linked all the different phases into a whole. That only happened when they had developed an idea and presented it at a presentation event.’ (teacher-mentor)

‘With the integration of the local community, we found it much easier to present activities to pupils in the workplace. It was therefore better for all the work to take place in the local community space, rather than for local community representatives to come to the school to present their work.’ (teacher-mentor)

‘The biggest problems we faced came in the phase of potential innovation production. We produced the product prototype externally, but that took considerable time and we had to pay for material and labour, so it gave rise to quite a lot of costs.’ (teacher-mentor)

The diary entries indicate that the teachers perceived the work of the enterprise circles to be sound and rational. They believed that there was too much emphasis on the administrative work connected with preparing the business plan and market analysis. Teachers also raised the issue of the work of enterprise circles in schools and the costs of producing prototypes.

The second objective included a study of the level and intensity of cooperation between schools and other institutions and individuals to promote creativity and innovation (Figure 1). The factors that promote or hinder pupil creativity and innovation in terms of the school as a whole (Figure 2) were also presented. These factors were scored on a five-point scale, with a value of -2 meaning that the factor was a major hindrance and a value of 2 meaning that the factor was very encouraging (i.e. a very good source of promotion).

The findings indicate that over 85% of schools collaborated with local societies and organisations involved in sport, culture, tourism and other activities at the local level. The collaboration was regarded as ‘intense’ for over half those schools that did work with such institutions.

The picture is very different when one looks at cooperation between schools and the business environment. Between 60 and 80% of schools did not create links with

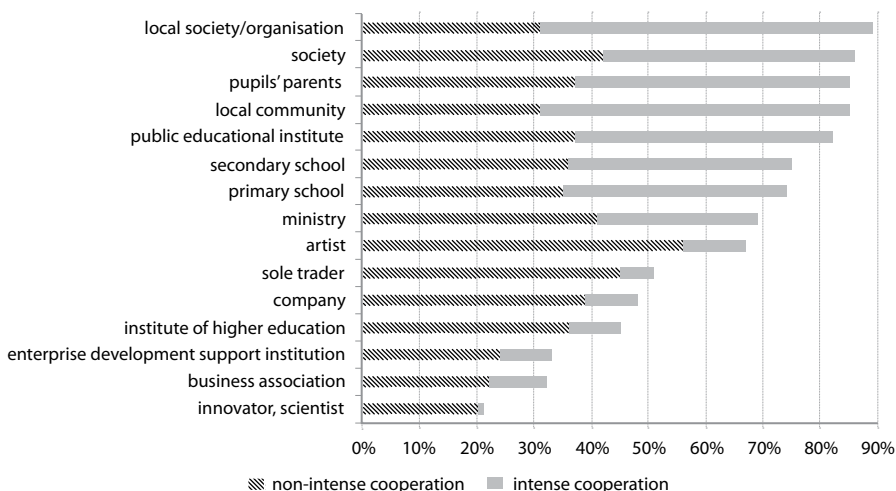


Figure 1. Cooperation between schools and institutions and individuals (headteachers)

innovators, sole traders, companies, business associations or institutions engaged in the promotion of entrepreneurship development within the broader environment. If they did cooperate with such institutions, the cooperation was not particularly intense.

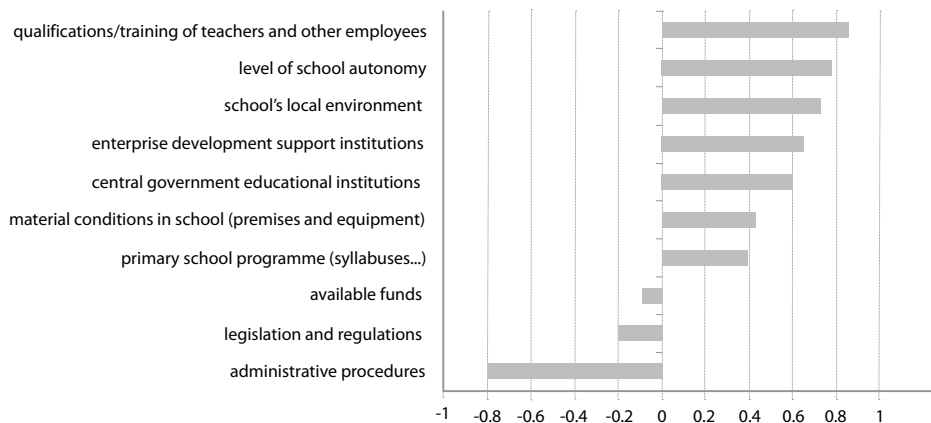


Figure 2. Factors promoting or hindering pupil creativity, innovation and entrepreneurship (headteachers)

Headteachers considered young people's creativity and innovation to be encouraged most as a result of the level of training of a school's teachers (average 0.86). This was followed by the level of school autonomy, the local environment of the school, entrepreneurship development support institutions, central government educational institutions, the material conditions of the school, and the primary school curriculum. The factors headteachers ranked as the main hindrances were, in the first place, administrative procedures, with an average score of -0.80. All the factors checked are statistically significantly different (at the 0.001 level) from 0 (higher or lower), with the single exception of available funds, which one cannot unequivocally state to be a

hindrance to the development of pupil creativity, innovation and entrepreneurship (significance in a two-sided t-test in that case was 0.349). One can only suggest that the possibility exists that the development of pupil creativity, innovation and entrepreneurship is also hindered by a school's financial conditions.

To investigate the reasons for poor cooperation between schools and business, interviews were organised with headteachers and entrepreneurs to supplement the empirical findings. The interviewee statements that best defined the research problem were as follows:

Table 1. Headteacher and entrepreneur responses (headteachers, entrepreneurs)

Headteachers	Entrepreneurs
<p>1. Do you cooperate with the business environment (or with schools)? If so, what does this cooperation consist of?</p>	
<p>'We cooperate to a small extent with the business environment. We occasionally receive invitations (from Gea College, JAPTI and others) to various competitions linked to innovation and entrepreneurship, but these competitions are not of great interest to us.' (headteacher of a city school)</p> <p>'We would like to take part in such projects, which would offer theoretical and practical insights into developing creativity, innovation and entrepreneurship, but we don't know how to start. Some examples of best practice would help us a lot.' (headteacher of a city school)</p>	<p>'Local schools don't invite us, but we'd like to take part.' (entrepreneur)</p> <p>'We cooperate with local schools, most often as donors. Schools visit us occasionally, and we present our work to them. We present our production, and then pupils do presentations based on that. We are usually invited to schools' end-of-year presentations.' (entrepreneur)</p>
<p>2. If you do not cooperate with the business environment or with schools, what are the reasons for not cooperating?</p>	
<p>'Cooperation between schools and the business environment doesn't have enough emphasis in education documents, so it isn't one of the school's main challenges.' (headteacher of a rural school)</p> <p>'Teachers are overworked inside and outside the classroom. Any more work just represents an additional burden.' (headteacher of a city school)</p> <p>'Most teachers do not feel the need for that kind of cooperation, nor are they aware of how to cooperate with businesses.' (headteacher of a rural school)</p>	<p>'Local schools have their own issues to deal with and are not particularly interested in our work.' (entrepreneur)</p> <p>'We don't have time to deal with the organisation and all the rest of the things schools want. We have enough of our own financial and organisational problems.' (entrepreneur)</p>
<p>3. What should be done to strengthen cooperation between schools and the business environment?</p>	
<p>'It would be good if business people came forward with ideas for cooperation. Teachers would be happy to respond and cooperate in seminars, round tables or projects.' (headteacher of a city school)</p> <p>'If activities took place in school, more teachers and pupils could take part.' (headteacher of a rural school)</p>	<p>'I think schools should be more aware of the importance of practical experience of work.' (entrepreneur)</p> <p>'There is a need for greater openness between schools and businesses.' (entrepreneur)</p> <p>'Cooperation could be more developed if those in charge of schools decided that it should be so.' (entrepreneur)</p>

The reasons given by interviewees illustrated the gap in cooperation between schools and business representatives.

The results relating to the third objective (Table 1) set out the differences in the positions expressed by the group of teachers that participated in the project (mentors) and the randomly selected group of (other) teachers with regard to the quality of the curriculum, lessons, the school environment and the broader environment. The table only indicates statements for which there was a statistically significant difference between the groups, or where the difference was on the verge of significance. The averages were calculated on the basis of a five-point scale, with a score of 1 meaning 'complete disagreement' and the score 5 meaning 'complete agreement' with the statement.

Table 2. Differences in positions according to teacher group (teachers)

Area	Indicator	Mentors (n)	Other teachers (n)	t (sig.)
Curriculum	Syllabuses were overly detailed for quality work with pupils.	3.99 (98)	3.58 (141)	3.724 (0.000)
	The curriculum had too much prescribed content and not enough optional content.	3.60 (97)	3.41 (139)	1.9 92 (0.048)
Lessons	Pupils' ideas are welcome.	4.56 (99)	4.34 (140)	2.963 (0.003)
	I expect a lot from pupils.	4.14 (96)	3.98 (140)	1.973 (0.050)
	I frequently use ICT in lessons.	3.76 (99)	3.37 (141)	2.869 (0.005)
	I involve pupils in project work.	4.18 (98)	4.01 (140)	1.768 (0.078)
School environment	Our school is open to new ways of thinking.	3.79 (99)	4.00 (139)	-2.268 (0.024)
	Our school is innovative.	3.79 (99)	3.96 (140)	-1.956 (0.052)
	Our school tolerates mistakes.	3.31 (97)	3.51 (140)	-1.794 (0.074)
	Our school places an emphasis on discipline.	3.84 (100)	3.65 (141)	1.839 (0.067)
Research project work	Participation in research projects encourages me to generate new ideas.	4.11 (99)	3.70 (142)	4.543 (0.000)
	Applying to tenders to participate in projects encourages me to generate new ideas.	3.85 (99)	3.51 (142)	3.026 (0.003)
Family and other traits	My family encourages me to develop new ideas.	3.96 (99)	3.74 (141)	2.084 (0.038)
	My personality traits are an important factor in developing new ideas.	4.48 (99)	4.34 (142)	1.816 (0.071)

Statistically significant differences between the groups were identified for statements agreeing that syllabuses were too detailed to foster high-quality work with pupils, and that they had too much prescribed and not enough optional content. Teacher-mentors proved more critical on this issue. At the same time, teacher-mentors were more likely to accept pupils' ideas; in fact, this statement produced the largest difference between the two groups. Compared to the group of randomly selected teachers, the mentor group expected more from their pupils and used ICT more frequently in their lessons; they were also more likely to involve pupils in project work.

On the other hand, teacher-mentors who had participated in the one-year project were more critical when discussing the level of promotion within the narrower

school environment. They were less likely to attribute open thinking and innovation to their schools, and also believed that their schools were less tolerant of mistakes, although the statistical significance for this last statement is only borderline significant. Teacher-mentors meanwhile mentioned discipline as a characteristic of schools more than other teachers. They also assessed that research projects and tenders to participate in projects were an important factor in promoting innovation –this is another statistically significant difference between the groups. Teacher-mentors attributed greater influence in the promotion of innovation specifically to the family, i.e. the domestic environment, while they also considered personality traits to be important. The difference for this statement is only borderline significant.

For the fourth objective, the responses given by pupils (Figure 3) are presented; pupils scored individual factors and people using a five-point scale, with a score of 1 meaning ‘did not help at all’ and 5 meaning ‘helped a great deal’. Although headteachers stated that teachers were the most important factor in promoting innovation in school, the picture was different from the pupils’ point of view.

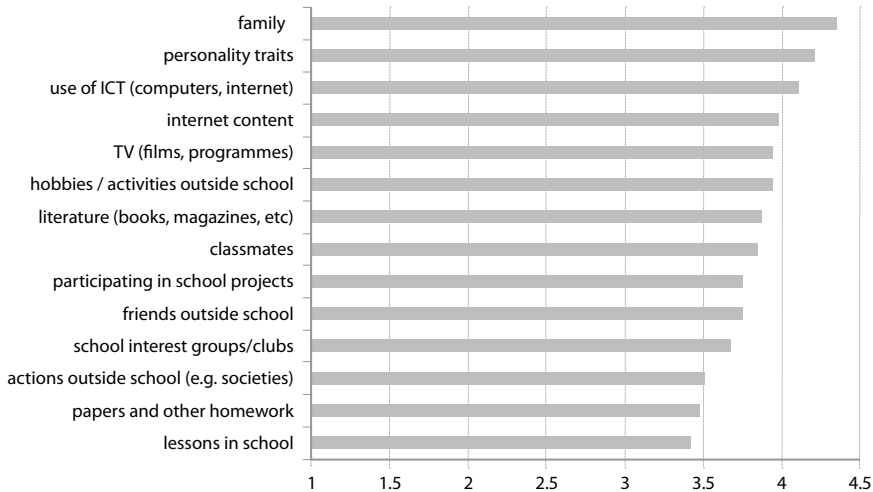


Figure 3. Factors and people in the local environment (pupils)

Taking the factors above, the highest contribution to developing new ideas came from the family (average score 4.35), personality traits (average 4.21) and ICT use (average 4.11), and the lowest came from lessons in school (average 3.41), and seminars and other homework (average 3.48). When asked why school lessons were least effective in promoting the development of new ideas, pupils had the following to say:

- Work in the enterprise circle was interesting and different to lessons. In lessons, the teachers usually talk, while we just listen and repeat. Some teachers get annoyed if we ask too many questions. A while ago, our group was given an assignment in class to do a presentation on India. When we wanted to present the project in a slightly more innovative way, the teacher told us there wasn't enough time. He only wanted us to present the basic characteristics of the country (Group 1).

- In lessons, we study individual subject areas in a lot of detail, but we don't have many opportunities to do practical work. In the enterprise circle, we gave a film presentation for classmates and local residents. We got to know and linked together a lot of different types of content, and at the end we organised everything and implemented the project in practice (Group 2).

Pupils' responses also differ from those given by teachers, although we did not offer the same responses to both groups for the question relating to the factors and people responsible for developing new ideas. Teachers identified their personality traits as being the most important factor in the development of new ideas (this was in the second place for pupils), while family was only ranked seventh in terms of importance (the averages for both factors are shown in Table 2). Personality traits were followed in importance by hobbies and activities outside school and by factors that can be linked with their professional work, including participation in research projects (the average for this factor is shown in Table 2). The use of ICT, which pupils placed at the third position, was assessed by teachers as being less important; indeed, they placed it at the tenth position.

Discussion

An analysis of diary entries indicates that the enterprise circles are a welcome form of innovation promotion within the school environment; the diary entries also point out that this format gives rise to an excessive amount of administrative work. Other authors agree with this (Garavan, & O'Conneide, 1994; Honig, & Karlsson, 2004; Kelley, & Littman, 2005; Martin, 2004; Meinel, & Leifer, 2011), having found that the use of business plans in entrepreneurship education does not give adequate results. They focus on creative problem-solving by young people, a universally applicable skill as well as the essence of entrepreneurial thought and action. This constitutes a designer-oriented method of thinking (Rauth et al., 2010), and one which is already gaining a central position in primary and secondary schools (Carroll et al., 2010). The essence of this method of thinking is an active teaching approach that identifies factual problems, the needs of an individual or group and the specific solutions to these problems.

In linking schools with institutions and individuals that promote student creativity and innovation, cooperation with local societies and organisations is of greatest importance, and it is encouraging to note that the headteachers surveyed agreed with this. This means that the centre of the work moves towards the community, with the decision-making taking place there. Despite the variety and breadth of cooperation between Slovenian primary schools and the local environment, the question is whether and how much these forms of cooperation promote and develop innovation and entrepreneurship among young people. The doubt is justified, since the actual level of cooperation between schools and the business environment presents a very different picture. A large majority of schools do not seek connections or link up with innovators, sole traders, companies, business associations or institutions engaged in promoting

entrepreneurship development in the broader environment. If they do cooperate with such institutions, the cooperation is not very intense.

An analysis of interviews with headteachers and entrepreneurs, designed to provide further clarification of the circumstances behind the weak cooperation between schools and the business environment, indicates two broad causes. First, there is noticeable pressure on schools and they lack the know-how or ability to connect with businesses in the broader community. Second, there is noticeable lack of initiative and responsiveness on the part of the business environment, which still does not seek links with schools nor invite them to work with them. Moreover, entrepreneurs and others are often preoccupied with their own organisational and financial problems. Schools, as institutions, live a rather self-sufficient life – they do not feel the need to open up and keep pace with current trends in life in Slovenia. The ‘industrial model of thinking’, which places insufficient emphasis on flexibility and innovation, still prevails. Legislation and regulations dictate precisely the life and work of schools, the standards of knowledge are defined in detail, and the answers are given at the back of the textbooks. All this means that a teacher is merely the conduit through which instructions flow ‘from the top downwards’. Energy is lost, authority collapses and teachers’ professional integrity is destroyed; a feeling of being overburdened and powerless gradually takes over. All this hinders the development of creativity and innovation among young people. At the same time, there is a lack of adequate policies to promote the development of a strategy to train and encourage young people in innovation and entrepreneurship. There is a lack of awareness of how important it is to connect the education system to the labour market. There is clearly a need for outside initiatives that act tangibly to bring schools together with the business environment, and therefore promote a field of best practice that will help teach young people how to turn thoughts into action. This means developing a creative environment that can link and direct collective processes and promote joint action by the participants in these processes (Krogh et al., 2000).

It is not surprising that headteachers ranked trained teachers as the most important factor in promoting innovation in schools. Teachers are in contact with pupils on a daily basis and know that, for each solution, there are many potential paths leading to the objective. The question is whether and to what extent teachers are also aware of the added value that a creative and innovative educational approach offers. Observations indicate that in some places there is a lack of awareness about this, leading to a failure to put such ideas into practice.

The next important factor promoting the development of creativity and innovation is the level of autonomy enjoyed by the school; Shapiro (2011) even consider autonomy to be a key factor in the institutional development of innovation. How it is enacted within school management is important and includes the question of the extent to which teachers, as professionals, exercise their right to professional judgement, how autonomous each school is, how schools and teachers understand autonomy,

and whether they are ready to accept and exercise it as part of their responsibilities. The fact is that Slovenian schools are today restricted by numerous administrative regulations that directly or indirectly regulate the educational system (Cerar, 2011) and make the educational process too bureaucratic. This restricts teachers' exercise of 'executive power' and frequently prevents them from taking the right decisions and expressing an amount of freedom sufficient to enable them to provide a high-quality educational process. Sometimes this is also a very handy excuse for many teachers who do not want to assume the responsibility that comes with making independent decisions.

The third important factor promoting innovation in schools is the local environment. The current tougher business conditions require local communities and regions to increase their competitiveness; this means that they also have to address their own development potential and have an appropriate development policy in place. They cannot just wait and count on assistance from the state, which – given the many problems it faces at the macro-level – is increasingly hard-pressed to address local problems, notwithstanding the fact that its tasks include using an improved development policy to encourage companies to grow and progress. Every region must create development groups, adopt an appropriate development policy and achieve consensus within the region on the coordination of action within that region (Cankar et al., 2011, Setnikar Cankar et al., 2013). This, of course, includes cooperation with schools.

One factor that can undoubtedly act to promote or hinder innovation among young people is the school curriculum, and its implementation in particular (Gotvassli, 2008). This raises many questions, one of the main ones being how teachers understand knowledge and how they communicate this to pupils. This is something that comes exclusively from them – they are facilitators of knowledge and they decide what is right and what is not. This leads to 'closed' lessons and a rigid ranking of pupils according to ability which is unable to promote the development of pupils' creativity. Alternatively, they understand knowledge in terms of communicating basic knowledge to pupils, where the depth and breadth of this knowledge and the manner in which they incorporate this into their own knowledge depends on each individual, their position within the group, assistance from the teacher and their lifestyle at home (Plut-Pregelj, 1999). 'Open' lessons of this kind are essential to the development of pupil creativity and can only be realised in direct contact with pupils, which means that what goes on in the classroom is vital.

Among the factors that headteachers ranked as the greatest hindrances to the development of innovation were excessive administration and educational legislation. This is because one of the main, if not the fundamental, weakness of the Slovenian school system is rigidity or an 'industrial model of thinking' that excludes flexibility and innovation. Teachers can only operate as executors of something that is precisely defined 'from above'. This wastes time and energy and damages teachers' authority,

at the same time nullifying teachers' professional functions and responsibilities. This in turn blocks the development of pupils' creativity because it erects obstacles to the formation of a suitable environment in which to promote the flow of new ideas, curiosity and innovation.

The teachers who participated in the project and led enterprise circles differed significantly from other colleagues in many areas of importance to the development of innovation. They are most critical of syllabuses, as they consider that they are too detailed to permit high-quality work with pupils, offering too much prescribed and not enough optional content. This makes it harder for teachers to devote lesson time to themes that are not directly linked to the syllabus. The fact is that Slovenian schools still do not satisfactorily grasp the sensitive relationship between their role as sharers of knowledge with young people and their other role as nurturers of creativity and innovation. Processing large quantities of data does not necessarily mean greater knowledge if teacher and pupil do not have the opportunity to place this data in an appropriate context and to understand it. One of the reasons for this situation is undoubtedly the conviction or culture that has existed in recent years in Slovenian educational practice: that it is vital for pupils to gain specific knowledge that permits them to advance within the school system. This concept leads to pupils being rigidly classified according to ability and undermines the idea of lifelong learning and the rationale of 'teaching for life'.

Another major area in which the positions of teacher-mentors are significantly different to those of their colleagues is their attitude towards cooperation with pupils in lessons. It is clear that teacher-mentors are more open and more likely to accept pupils' ideas, while also expecting more of them. They also use ICT more frequently in lessons, and are more likely to involve pupils in project work. Teacher-mentors that have led enterprise circles are less likely to attribute open thinking and innovation to their schools, and also believe that their schools are less tolerant of mistakes, while they are more likely than their colleagues to mention discipline as a characteristic of their school. They attribute greater influence in the promotion of innovation to the family in particular, i.e. the domestic environment, while they also consider personality traits to be important. There is also a statistically significant difference between the mentor and other-teacher groups in their view that research projects and tenders to participate in projects are an important factor in the promotion of innovation among pupils.

The positions expressed by the teacher-mentors are encouraging, as they are aware that a school that shapes pupils into standardised models of thought, ways of thinking and problem-solving actually functions as a block to pupil creativity. This does not, of course, only apply to Slovenian primary schools; many other school systems encounter serious difficulties when seeking a balance between developing adequate knowledge and skills and promoting pupil creativity. This is a major error for which we are all responsible. Pupils learn that when they do and think about things in the 'right' way, they will be rewarded with good marks, while they are punished for acting

and thinking in the 'wrong' way (Robinson, 2010). On the one hand, this form of encouragement means the focus of young people's motivation in their school work moves outwards from within, while external motivation starts to replace internal motivation if there is an emphasis on school marks. Therefore, when pupils learn that there are 'right' and 'wrong' ways of thinking and solving problems, it consolidates the concept that different ways of thinking and other solutions are wrong. When what is different becomes 'wrong' and is generally followed by punishment in the form of lower marks then pupil creativity and innovation cannot develop in the best way possible. Why should a pupil take a risk and be innovative if that only leads to punishment, i.e. being marked down?

Teacher-mentors are also significantly different from the randomly selected group of teachers in one more exceptionally important area, an area without which there can be no development of creativity and innovation: tolerating errors in pupils' work. It seems that today's primary schools are not 'error-friendly'. Children quickly learn that they should not make mistakes, which are often punished with poor marks. They also soon learn that at school it is better to do nothing than to make a mistake. When pupils realise that it is not worth risking making a mistake, they simply stop trying, and give up on being curious, creative, original and innovative. According to Robinson (2011), while people do not learn to be creative, they can become *less* creative. School can make us 'unlearn' creativity – not school *per se* but the schools we have, the schools of the early industrial age. In recent years, these schools have slightly updated their approaches but not their basic philosophy, which still understands school as a factory for producing young people equipped with sufficient 'knowledge'.

Creativity and innovation are typical of cultures that encourage risk rather than risk avoidance. Studies (Ferrari et al., 2009) indicate that the skills of risk-taking and research – the bases of creativity and innovation – are the opposite of typical school values such as obedience and discipline. A tolerant environment or culture is exceptionally important: an environment that enables people to recognise what is original and what is mere conformity. A creative culture offers many opportunities for individuals to engage, to build knowledge and to negotiate. It is dominated by open communication at all levels, placing trust, the promotion of difference and an understanding of relations between people and culture at its very centre. How open the school management is to all kinds of innovation is also very important. If the management is open, many kinds of changes can take place; if it is not, one cannot expect major changes to occur.

Finally, the authors were also interested in identifying those factors or people that encouraged pupils to generate new ideas. Pupils believed that the main contributions to this came from their families, their own personality traits and the use of ICT, with lessons at school, seminars or other homework making the lowest contribution. Pupil criticism of school lessons is not surprising: clearly it is still difficult for pupils to express themselves in non-standard ways within the school system. Lessons

separated into different subjects and restricted by the school timetable do not offer them sufficient challenges when it comes to expressing creativity and innovation. This does not mean that school is too difficult, but that it obviously has too much of 'something' that leads to resistance from pupils and gives them a feeling of being overburdened. This 'something' is an excessive quantity of data and information and the method used to communicate it (Musek Lešnik, 2011). Today's pupils are no different to those of decades ago; however, the world in which we live and in which they will grow up has changed, which means that schools must adapt to this changed world.

Conclusion

The findings suggest that the participation of schools and the local community in the promotion of creativity and innovation is influenced by a web of social circumstances linked to the experiences of the partners involved. Although enterprise circles are a welcome form of promoting innovation and entrepreneurship within schools, in terms of seeking sustainable solutions, theory and practice are already moving beyond them. At the heart of new developments are approaches that emphasise creative problem-solving among young people, which is a universally applicable skill, as well as being the essence of entrepreneurial thought and action.

A majority of schools fail to make sound contacts and connections with innovators, sole traders, companies, business associations and institutions engaged in promoting entrepreneurship development within the broader environment. The findings indicate a lack of awareness of the importance of linking the education system to the labour market. Headteachers ranked trained teachers, school autonomy, the local environment and the curriculum as the most important factors promoting innovation in schools. Among the factors ranked as the greatest hindrances to the development of innovation were excessive administration and educational legislation.

Teachers who had led enterprise circles differed significantly from their colleagues in being more critical of syllabuses, which they consider to be overly detailed. Mentors are more likely to accept pupils' ideas, use ICT in lessons more often and involve pupils in more project work, and are less likely to attribute open thinking and innovation to their schools. The more critical views of mentors are also expressed in their view that their schools are less tolerant of mistakes and place too much emphasis on discipline. Despite some limitations, the findings indicate that experienced and innovative teachers constitute an important element of innovative work. Teachers who have participated in planned activities to promote the development of creativity and innovation think and act differently. This indicates that creativity and innovation can be developed by fostering a stimulating environment. Schools need to develop in a way that brings professionals and knowledge closer together.

Pupils believed that the main contributions came from their families, their own personality traits and the use of ICT, with lessons at school, papers seminars or other homework making the lowest contribution. It is clearly still difficult for pupils

to express themselves in non-standard ways within the school system. There is a need for a serious rethinking of the possibilities and methods of including pupils in activities linked to innovative problem-solving. A suitable initial approach would be to plan and implement an optional subject that could gradually influence teaching and learning in schools.

Despite the many restrictions placed on putting educational innovation into practice in schools, it is encouraging to note that major changes in schools are coinciding with significant changes in social, economic and political trends in society and institutions (Di Maggio, & Powell, 1983). The global economic crisis has ushered in a positive conflict that could facilitate the introduction of innovative changes to schools. In future, the development of the individual and their lifelong learning skills will be emphasised, along with training to increase added value and the flexibility of the labour market.

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Škole i promicanje inovacije

Sažetak

Globalna ekonomska kriza pokazala je da Slovenija kasni za bolje organiziranim i globalno kompetitivnim državama, što je vidljivo iz mjerenja nekoliko važnih indikatora, a otkriven je i nedostatak odgovarajućih strategija i smjerova s pomoću kojih bi se situacija popravila. U radu su prikazani rezultati rada gospodarstvenih krugova i trenutno stanje osnovnih škola u Sloveniji s obzirom na promidžbu kreativnosti, inovaciju i enterprise. Proučeni su oni čimbenici unutar škola i šire lokalne okoline koji mogu promicati ili sputavati razvoj kreativnosti, inovaciju i poduzetništvo među učenicima. Ciljevi su pojašnjeni u pristupima istraživanju koje povezuju empirijske podatke s onim društvenim okolnostima koje utječu na razumijevanje tog pitanja. Rezultati ukazuju na nedostatak informiranosti o tome koliko je važno stvoriti veze između obrazovnog sustava i tržišta rada. Nastavnici koji su sudjelovali u aktivnostima koje promiču razvoj kreativnosti i inovacije puno su kritičniji prema svojim školama, dok se učenicima u okviru školskog sustava još uvijek teško izjašnjavati na drukčiji način.

Ključne riječi: gospodarstveni krugovi; nastavnici; osnovna škola; učenici

Uvod

Globalna ekonomska kriza pokazala je da Slovenija zaostaje za organiziranijim i globalno konkurentnim državama, a to je vidljivo iz mjerenja nekoliko važnih indikatora (EIS, 2006; Glavič, 2011). Mnogi od njih tijesno su vezani uz gospodarstvene inovativne kapacitete. Samo u 2011. Slovenija je pala za 12 mjesta na ljestvici globalnog kompetitivnog indeksa (eng. Global Competitiveness Index) (Global Competitiveness Report, 2011), što je jedan od oštrijih padova među svim navedenim zemljama. Iako je Slovenija prikazana kao zemlja s ekonomijom inovativnog karaktera, ona značajno zaostaje za većinom ostalih ekonomija istog karaktera s obzirom na faktor sofisticiranosti, kao i s obzirom na kvalitetu obrazovnih sustava. Time je otkriven nedostatak prikladnih strategija i smjerova kako bi se situacija popravila, a usmjerila se na obrazovni sustav za mlade koji mora postati otvoren i relevantan za življenje. Kreativnost, sposobnost inovacije i traženje novih rješenja sve su traženije vještine na tržištu rada. Koja je vrijednost znanja ili boljih rezultata u odnosu na vršnjake u drugim

europskim zemljama (vidi rezultate TIMS, PISA istraživanja) ako pojedinci ne mogu integrirati ili primijeniti to znanje na inovativan ili poduzetnički način? Usvojeno znanje predstavlja samo potencijal koji još nije ugrađen u kreativno nastojanje.

Potreba za širom i ambicioznom politikom inovacije i poduzetničke aktivnosti među mladima spominje se u mnogim današnjim europskim i globalnim dokumentima. Upravo to se naglašava više nego ikada prije zbog toga što su kreativnost i inovacija pokretači društvenog razvoja. Florida (2002) spominje društva koja prelaze iz informacijskog perioda u „kreativno društvo“ dok Salkowitz (2010) tvrdi da postoje tri glavna faktora koja će utjecati na transformaciju društva u 21. stoljeću: mladi, IKT (informacijsko-komunikacijska tehnologija) i poduzetništvo. Obrazovanje i motiviranje mladih da preuzmu inicijativu na svim razinama obrazovnog procesa ključan je dio cjeloživotnog učenja i postaje važan dio općeg čovjekova znanja. Većina zemalja EU radi na osiguranju inovativnije, poduzetničke i kreativne inicijative za mlade ljude. Široki spektar mjera uveden je kako bi se to osiguralo s različitim stupnjevima uspjeha.

Obrazovne institucije nemaju utjecaja na poduzetničko okruženje niti imaju resurse potrebne za razvoj poduzetništva. Unatoč tome, one mogu motivirati mlade da razmišljaju i razumiju poveznicu između individualnih elemenata mikro i makro razina poduzetništva. Mogu ih poučiti kreativnim i inovativnim obrascima ponašanja i podržati ih u usvajanju iskustava u tom području. Iako ciljevi i metode promicanja kreativnosti i inovacije nisu identični s obzirom na razinu obrazovanja, nedavna istraživanja (Kourilsky i Carlson, 1997; Gibb, 1998) ukazala su na potrebu za uključivanjem visokokvalitetne inovacije i poduzetničkog sadržaja u obrazovni sustav. Odgovarajuće vještine mogu se razviti u ranom obrazovanju (Kent, 1990; Chell i sur., 1991), ali ostaju najprisniji osobnim karakteristikama koje se razvijaju u mladih osoba za vrijeme procesa socijalizacije.

Kreativnost i inovacija ne mogu se podučavati: kreativnost nalaže odgovarajuće okruženje koje promiče stvaranje novih ideja, radoznalost i inovaciju. Burke (2007) navodi da „ako je kreativnost toliko teško definirati, onda je sigurno da je moguće osigurati uvjete u kojima će se kreativnost vjerojatno razvijati.“ To se posebno događa u integriranim načinima učenja koji promiču rješavanje problema u realističnim i autentičnim situacijama. Taj proces poboljšava samopouzdanje i razvija vještine na osnovi individualnih, osobnih resursa; također poboljšava uključenost u praktičnom radu. Ako želimo promovirati razvoj inovacije i poduzetništva, onda rad u školi ne možemo odvajati od lokalne zajednice i procesa proizvodnje. Naravno, motiviranje učenika da razvijaju nove ideje samo je prvi korak. Dobre ideje moraju se razvijati, postati vidljive te primjenjive u praksi – a možda jednoga dana i oglašene (Likar i dr., 2004). To uključuje učenike koji pokušavaju prenijeti kreativne ideje na cjelokupni lanac inovacija i inovativnosti do te mjere da rezultati koji su korisni mogu biti od koristi i za druge, a to razvija vještine poduzetništva koje nisu cjelovite i neovisne o kontekstu rada i života (Svetlik, 2009). Najviša razina individualnih vještina očituje se u rukovođenju ili svladavanju novih ili drukčijih uvjeta.

Istraživanja (Ferrari i sur., 2009; Chell i Athayde, 2009) su pokazala da je inovacija aktivnost koja se može podučavati kao i bilo koja druga aktivnost. U tome nastavnici imaju ključnu ulogu, ali i oni sami moraju imati podršku institucije ako nastoje motivirati studente da postanu kreativni i inovativni. Na žalost, sustav profesionalnog cjeloživotnog obrazovanja još se uvijek prečesto usredotočuje na klasične školske predmete (Selinger i sur., 2008), opseg interdisciplinarnih tema je ograničen, a nastavnici smatraju da nisu dovoljno kvalificirani da se suoče s međukurikularnim temama i da povezuju različita područja znanja u svom poslu (Saunders i sur., 1995; Kerr, 2000). Glavni naglasak morao bi biti stavljen na obuku nastavnika kako bi se mogli nositi s promjenama, osobito vezanim uz okolnosti i mehanizme podrške koji potiču kreativno učenje i inovativno podučavanje.

Tvrtke i organizacije toga su također svjesne, poglavito kada je jasno da ako želimo biti inovativni u okruženju u kojem djelujemo, moramo imati podršku lokalne zajednice. Ona će nam stvoriti dovoljno poticaja i poduzetničkih izazova koji će mladima pomoći u pretvaranju ideja u projekte koji su vezani uz različita polja života unutar te lokalne zajednice. Istovremeno, tvrtke koje ulažu u inovacije mladih svjesne su činjenice da upravo ti mladi ljudi predstavljaju potencijalne buduće novake (zaposlenike). Unatoč činjenici da se kreativnost i inovacija kod mladih može razviti u ranoj dobi, politika Slovenije usmjeruje znatne resurse u razvoj ekonomskih inovacija i kompetitivnosti, s uvjerenjem da će na taj način lakše doći do nagrada. U smislu planirane i sustavne promidžbe kreativnosti i inovacije, kao i srodnog poduzetničkog razmišljanja, mladi ljudi ostaju po strani.

Bilo bi nepravedno tvrditi da škole u Sloveniji nemaju ideja; one svakako imaju organiziranu vanjsku inicijativu za razvoj kreativnih i inovativnih procesa među učenicima. Unatoč tome, rezultati istraživačkog projekta *Mladina 2010* (Lavrič, 2010) ukazuju na to da su mladi ljudi svjesni specifičnih nedostataka u obrazovnom sustavu toga područja. To znači da bi potrebna poboljšanja kurikula mogla imati pozitivan učinak na mogućnost mladih da internaliziraju kreativnost i inovaciju i također potaknu inicijative koje stvaraju veze s lokalnom zajednicom. Očito je da postoji potreba za inicijativama koje imaju vidljive rezultate kako bi opskrbile škole najnovijim trendovima u području kreativnosti, inovacije i poduzetništva te na taj način kreirale i ojačale ovo područje primjerima najbolje prakse.

Projekt je primijenjen u osam regija u Sloveniji u 2010. i 2011. godini kako bi promovirao kreativnost, inovaciju i poduzetništvo među mladima, a organizirala ga je Slovenska gospodarska komora za mala i srednja poduzetništva.² Svrha tog dvogodišnjeg projekta bila je osposobiti nastavnike-mentore koji bi radili s učenicima i vodili s njima projekte u suradnji s predstavnicima lokalne zajednice (poduzetnici,

² Ovaj rad dio je projekta nazvan "Implementacija Integriranog programa za promidžbu kreativnosti, inovacije i poduzetništva mladih kroz integraciju i djelovanje lokalne zajednice – 2010 i 2011". Projekt vodi slovenska trgovinska i gospodarska komora.

inovatori itd.) u „poduzetničkim krugovima“. Opći plan bio je utemeljen na klasičnom konceptu razvoja inovacije i poduzetništva. Proces rada fokusirao se na nekoliko povezanih faza: definicija problema, promatranje, usvajanje ideja, prototip izrada i primjena. Rad na odabranoj ideji koju je razvila školska projektna skupina odvijao se na fleksibilan, ali napredan način. Vanjski suradnici i nastavnici iz drugih predmeta angažirani su prema potrebi projektnih faza. Nakon godine dana rada projektna skupina mogla je prezentirati prilično velik broj zanimljivih proizvoda i usluga.

Metodologija

U sklopu projekta autori su procijenili rad poduzetničkih krugova i napravili procjenu stanja promidžbe kreativnosti i inovacije u osnovnim školama u Sloveniji. Autori su htjeli saznati koji faktori unutar škole i šireg lokalnog okruženja promiču ili sputavaju razvoj kreativnosti i inovacije. To je podrazumijevalo stavove ravnatelja, nastavnika i učenika o kreativnosti i inovaciji, razinu kvalitete koja omogućuje inovativno podučavanje unutar užeg školskog okruženja te posljedične promidžbe kreativnih procesa učenja. Opseg postupaka koji su dostupni mladima unutar šire lokalne zajednice, a koji im omogućuje dobro funkcioniranje u cjelokupnom lancu otkrića i inovacija bitan je kao i kvaliteta tih postupaka. Ciljevi ove procjene su sljedeći:

- pratiti rad poduzetničkih krugova i analizirati njihove jake i slabe točke
- odrediti razinu suradnje između institucija i pojedinaca, te identificirati one čimbenike koji promiču ili sputavaju razvoj kreativnosti, inovacije i poduzetništva među učenicima osnovnih škola
- odrediti postoje li razlike između stavova skupine nastavnika koji su sudjelovali u projektu i nasumce birane kontrolne skupine nastavnika
- odrediti koji čimbenici i koji ljudi potiču učenike na stvaranje novih ideja.

Prvi cilj uključivao je analizu „dnevnika“ koje su vodili mentori poduzetničkih krugova. Unosi su pregledavani i analizirani, a definicije i karakteristike koje su sveobuhvatno i sažeto opisale rad poduzetničkih krugova spojene su.

Drugi cilj testiran je analizom stavova ravnatelja osnovnih škola. Ukupno 153 ravnatelja sudjelovalo je u *on-line* istraživanju ispunjavanjem upitnika. Cilj je bio identificirati čimbenike koji su promovirali ili sputavali kreativnost učenika, inovaciju i poduzetništvo te ustanoviti razinu suradnje koja postoji među školama, institucijama i pojedincima iz lokalne zajednice. Statistički značajne razlike testirane su primjerenim t-testom. Nakon dobivenih rezultata slijedili su razgovori s pet ravnatelja i pet poduzetnika, kako bi se dopunili empirijski rezultati. Osobe koje su sudjelovale u razgovoru dolaze iz urbanih i ruralnih područja. Autori su htjeli saznati mišljenja ravnatelja o razlozima nezadovoljavajuće suradnje škola i poslovnog svijeta, kao i drugih škola. Podaci su analizirani kako bi se dobila deskriptivna i komparativna analiza. Odgovori ravnatelja i vanjskih suradnika dobivenih iz razgovora opisani su u dijelu koji opisuje rezultate istraživanja. Odabrani su samo oni odgovori koji najbolje definiraju postavljen problem.

Da bismo ispunili treći cilj, testirali smo je li kontinuirani period uključivanja nastavnika u vodeće poduzetničke krugove promijenio njihove stavove o kreativnosti i inovaciji. Ispitali smo 100 nastavnika (mentora) koji su vodili poduzetnički krug cijelu godinu te kontrolnu skupinu od 142 nasumce odabrana nastavnika. Obje skupine ispitivane su tiskanim upitnikom koji je zabilježio njihove odgovore vezane uz sljedeće teme: njihove stavove o kreativnosti i inovaciji, uporabi i ulozi IKT, učenju i ulozi učenika, obrazovanju i stručnom usavršavanju, kurikulu i silabu, školskom okruženju, podršci iz okruženja, razlozima za sudjelovanjem u inovativnom radu. Statistički značajne razlike testirane su primjerenim t-testom.

Četvrti cilj odnosio se na testiranje (tiskanim upitnikom) učeničkih stavova o čimbenicima i ljudima koji su ih poticali na razvoj novih ideja. Istraživanje je uključivalo 190 učenika iz trećeg obrazovnog ciklusa koji su sudjelovali u jednogodišnjem programu koji su ponudili poduzetnički krugovi. Uzorak je činio 81 dječak, 108 djevojčica i ispitanik koji nije naznačio spol. Ti učenici pohađaju 19 osnovnih škola. Većina učenika bila je iz osmih razreda (89), zatim iz sedmih razreda (75), dok ih je nešto manji broj (26) bio iz devetih razreda. Podaci su obrađeni kako bismo dobili deskriptivnu i komparativnu analizu. Nakon dobivenih rezultata, skupina je izabrana između dvije škole i članovi svake grupe individualno su intervjuirani. Cilj je bio identificirati razloge zbog kojih su učenici nastavu u školi prikazali kao nestimulirajuću u odnosu na poduzetničke krugove s ciljem stvaranja novih ideja.

Rezultati

Rezultati za svaku skupinu ispitanika prikazani su odvojeno. Prikazani su prema osobnim ciljevima u obliku tablica, grafova i dnevničkih unosa. Rad donosi izbor elemenata iz cjelokupnog istraživanja.

Za prvi cilj prikazani su dnevnički unosi mentora i koncept rada poduzetničkih krugova. Unosi su kategorizirani kako slijedi: procjena učinkovitosti poduzetničkih krugova, prednosti i mane poduzetničkih krugova, suradnja s predstavnicima lokalne zajednice. Samo oni unosi koji su na najbolji način naglasili problem istraživanja, navedeni su dalje u tekstu:

‘Rad s učenicima u poduzetničkim krugovima je dobar. Revitalizira uobičajen rad na normalnim satima. To je ono što se tiče mene kao nastavnika, ali isto tako i učenika. Određene faze malo su krute i administrativne. Primjer je priprema poslovnog plana jer učenici nisu bili previše motivirani i nisu povezali sve faze u cjelinu. To se dogodilo tek kada su razvili ideju i prezentirali je na prezentacijskom događanju.’ (nastavnik-mentor)

‘S integracijom lokalne zajednice učenicima smo mogli puno lakše prezentirati aktivnosti u radnom okruženju. Iz toga slijedi da je bilo puno bolje da se rad odvija u lokalnoj zajednici umjesto da predstavnici lokalne zajednice dolaze u škole prezentirati svoj rad.’ (nastavnik-mentor)

‘Najveći problemi dogodili su se u fazi potencijalne produkcije inovacije. Napravili smo vanjski prototip produkta, ali je to zahtijevalo prilično puno vremena i morali smo platiti za materijale i rad i time povećali izdatke.’ (nastavnik-mentor)

Dnevnički unosi ukazuju na to da su nastavnici shvatili posao poduzetničkih krugova kao ispravan i racionalan. Vjerovali su da se previše naglašava administrativni posao koji je vezan uz pripremu poslovnog plana i analize tržišta. Istaknuli su i pitanje rada poduzetničkih krugova u školama i cijene proizvodnje prototipova.

Drugi cilj uključivao je studiju o razini i intenzitetu suradnje između škola i drugih institucija te pojedinaca, kako bi se promovirala kreativnost i inovacija (Graf 1). Prikazani su i čimbenici koji potiču ili sputavaju kreativnost učenika s obzirom na školu (Graf 2). Ti čimbenici bodovani su na ljestvici od pet bodova s vrijednošću od -2, što predstavlja glavnu prepreku, 2 što predstavlja čimbenik koji je u velikoj mjeri poticajan (odnosno vrlo dobar izvor promocije).

Slika 1.

Rezultati pokazuju da više od 85% škola surađuje s lokalnim udrugama i organizacijama koje su vezane uz sport, kulturu, turizam i druge aktivnosti na lokalnoj razini. Suradnja je okarakterizirana kao “intenzivna” za više od polovine škola koje su radile s takvim institucijama.

Slika je puno drukčija kada pogledamo suradnju škola s poslovnim svijetom. Između 60% i 80% škola nisu ostvarile vezu s inovatorima, poslovnim pojedincima, tvrtkama, poslovnim udrugama ili institucijama koje su uključene u promidžbu razvoja poduzetništva u široj zajednici. U slučaju kada je suradnja s takvim institucijama postojala, ona nije bila u većoj mjeri izražajna.

Slika 2.

Ravnatelji smatraju da su kreativnost i inovacija kod mladih potaknuti kao rezultat razine usavršavanja nastavnika (u prosjeku: 0.86). To je popraćeno razinom školske autonomije, lokalne školske zajednice, institucija koje daju podršku razvoju poduzetništva, središnje vladine obrazovne institucije, materijalnih uvjeta škole i kurikula za osnovnu školu. Čimbenici koje su ravnatelji naveli kao glavne zapreke ponajprije su administrativne procedure (prosječno -0,80). Svi provjeravani čimbenici statistički se značajno razlikuju (na razini 0,001) od 0 (više ili niže) s jednom jedinom iznimkom, a to su raspoloživa sredstva za koja ne možemo tvrditi da su zapreka razvoju učeničke kreativnosti, inovacije ili poduzetništva (značajnost na dvostranom t-testu u tom je slučaju bila 0,349). Može se samo pretpostaviti da postoji mogućnost da razvoj učeničke kreativnosti, inovacije ili poduzetništva također može biti sputavan financijskom situacijom u kojoj se škola nalazi.

Kako bismo istražili razloge za slabu suradnju među školama i tvrtkama, organizirali smo intervjue s ravnateljima i poduzetnicima i tako poboljšali empirijske rezultate. Tvrdnje ispitanika koje najbolje definiraju problem istraživanja prikazane su u tablici 1.

Tablica 1. *Odgovori ravnatelja i poduzetnika (ravnatelji, poduzetnici)*

Ravnatelji	Poduzetnici
1. <i>Surađujete li s poduzetnicima u zajednici (ili sa školama)? Ako je odgovor 'da', u kojem se obliku očituje ta suradnja?</i>	
<p>'Surađujemo u manjoj mjeri s poduzetnicima u zajednici. Povremeno nas pozivaju (Gea College, JAPTI i drugi) na različita natjecanja povezana s inovacijama i poduzetništvom, ali ta nam natjecanja nisu suviše zanimljiva.' (ravnatelj gradske škole)</p> <p>'Rado bismo sudjelovali u projektima tog tipa, jer bismo na taj način dobili teorijska i praktična znanja potrebna za razvoj kreativnosti, inovacija i poduzetništva, no sami ne znamo kako početi. Primjeri dobre prakse bili bi nam od velike pomoći.' (ravnatelj gradske škole)</p>	<p>'Lokalne nas škole ne pozivaju iako bismo rado surađivali.' (poduzetnik)</p> <p>'Surađujemo s lokalnim školama, uglavnom kao donatori. Škole nas povremeno posjećuju i mi ih tom prilikom upoznajemo sa svojim radom. Pokazujemo im proizvodnju, nakon čega učenici izrađuju prezentacije na temelju onoga što su vidjeli. Uglavnom nas pozivaju na prezentacije koje se organiziraju na završetku školske godine.' (poduzetnik)</p>
2. <i>Ako ne surađujete s poduzetnicima u zajednici ili sa školama, koji su razlozi za to?</i>	
<p>'Suradnja između škola i poduzetnika u zajednici ne naglašava se dovoljno u odgojno-obrazovnoj dokumentaciji te stoga nije među glavnim izazovima za školu.' (ravnatelj ruralne škole)</p> <p>'Nastavnici su preopterećeni u školi, ali i izvan nje. Svaki dodatni zadatak predstavlja i dodatno opterećenje.' (ravnatelj gradske škole)</p> <p>'Većina nastavnika ne osjeća potrebu za tim oblikom suradnje niti znaju na koji bi način surađivali s poslovnim zajednicom.' (ravnatelj ruralne škole)</p>	<p>'Lokalne škole imaju svoje probleme i nisu pretjerano zainteresirane za naš posao.' (poduzetnik)</p> <p>'Nemamo vremena baviti se organizacijom i ostalim što škole zahtijevaju od nas. Imamo dovoljno svojih financijskih i organizacijskih problema.' (poduzetnik)</p>
3. <i>Što bi trebalo učiniti kako bi se ojačala suradnja između škola i poduzetnika u zajednici?</i>	
<p>'Bilo bi dobro kada bi poduzetnici predložili ideje za suradnju. Nastavnici bi se rado odazvali i sudjelovali na seminarima, okruglim stolovima ili projektima.' (ravnatelj gradske škole)</p> <p>'Kada bi se aktivnosti odvijale u školama više bi nastavnika i djece sudjelovalo u njima.' (ravnatelj ruralne škole)</p>	<p>'Mislim da bi škole morale osvijestiti važnost prakse i radnog iskustva.' (poduzetnik)</p> <p>'Postoji potreba za većom otvorenošću kako u školama, tako i među poduzetnicima u zajednici.' (poduzetnik)</p> <p>'Suradnja bi bila razvijenija kada bi odgovorni u školama tako odlučili.' (poduzetnik)</p>

Razlozi koje su naveli ispitanici u intervjuima pokazuju jaz u suradnji škola s poslovnim predstavnicima.

Rezultati vezani uz treći cilj (Tablica 1) prikazuju razlike u stavovima skupine nastavnika (mentora) koja je sudjelovala u projektu i nasumce birane skupine (ostalih) nastavnika o kvaliteti kurikula, nastavi, školskom okruženju i široj zajednici. Tablica prikazuje samo one tvrdnje koje su pokazale statistički značajnu razliku među skupinama, ili kada je razlika bila na granici značajnosti. Srednje vrijednosti izračunate su prema ljestvici od pet bodova (stupanj 1 značio je „potpuno neslaganje“ a stupanj 5 „potpuno slaganje“ s tvrdnjom).

Tablica 2.

Statistički značajne razlike među skupinama pokazale su se za tvrdnje u kojima se ispitanici slažu da su silabi predetaljni u poticanju vrlo kvalitetnog rada s učenicima i da nisu bili propisanog karaktera nego proizvoljnog. Nastavnici-mentori pokazali su se kritičnijima kod tog pitanja. U isto vrijeme nastavnici-mentori spremniji su prihvatiti ideje učenika. Štoviše, ta tvrdnja proizvela je najveću razliku između tih dviju skupina. Uspoređujući to sa skupinom nasumce biranih nastavnika, skupina nastavnika-mentora očekivala je više od učenika i koristila se IKT češće u nastavi; također su spremniji uključivali učenike u projektni rad.

S druge strane, nastavnici-mentori koji su sudjelovali u jednogodišnjem projektu bili su kritičniji vezani uz razinu promidžbe u užem školskom okruženju. Bili su manje voljni pripisati otvoreno razmišljanje i inovaciju svojim školama, vjerujući da njihove škole pokazuju manje tolerancije za pogreške, iako je statistička značajnost za tu posljednju tvrdnju granično značajna. Nastavnici-mentori spomenuli su disciplinu kao karakteristiku škola više nego ostali nastavnici. Također su procijenili da su istraživački projekti i ponude za sudjelovanjem u projektima bitan čimbenik u promidžbi inovacije – tu nailazimo na još jednu statistički značajnu razliku među skupinama. Nastavnici-mentori pripisuju veći utjecaj na promidžbu inovacije obitelji, odnosno obiteljskom okruženju, dok su osobne karakteristike također bitne. Razlika u tim tvrdnjama samo je granično značajna.

Za četvrti cilj prikazujemo odgovore koje su dali učenici (Graf 3). Oni su bodovali pojedine čimbenike i osobe koristeći se bodovnom-ljestvicom s pet stupnjeva (stupanj 1 značio je „nije niti malo pomoglo“, a stupanj 5 „jako je pomoglo“). Iako su ravnatelji tvrdili da su nastavnici najvažniji čimbenik u promidžbi inovacije u školi, situacija iz perspektive učenika nešto je drukčija.

Slika 3.

Uzimajući u obzir navedene čimbenike, onaj koji najviše pridonosi razvoju novih ideja je čimbenik obitelji (prosjeak: 4,35), osobne karakteristike (prosjeak: 4,21) i korištenje IKT (prosjeak: 4,11), dok najmanje pridonose nastavni sati u školi (prosjeak: 3,41), seminari i druge zadaće (prosjeak: 3,48). Na pitanje zašto je nastava najmanje učinkovita u promidžbi razvoja novih ideja, učenici su rekli sljedeće:

- Rad u poduzetničkim krugovima bio je zanimljiv i drukčiji od nastave. Za vrijeme nastave nastavnici obično govore dok mi samo slušamo i ponavljamo. Neki nastavnici postanu uznemireni kada im se uputi previše pitanja. Nedavno je naša skupina dobila zadatak da napravi prezentaciju o Indiji. Kada smo htjeli prikazati projekt na malo inovativniji način, rečeno nam je da za to nema dovoljno vremena. Naime, trebale su se prikazati samo osnovne karakteristike zemlje (Skupina 1).
- Za vrijeme nastave zasebno se uče predmeti i to prilično detaljno, ali nemamo puno prilike raditi praktično. U poduzetničkim krugovima imali smo filmsku prezentaciju za naše kolege iz razreda i lokalno stanovništvo. Uspjeli smo naučiti

i povezati puno različitih vrsta sadržaja i na kraju smo sve organizirali i projekt primijenili u praksi (Skupina 2).

Odgovori učenika također se razlikuju od nastavničkih odgovora iako nismo ponudili iste odgovore objema skupinama za pitanja vezana uz faktore i ljude odgovorne za razvoj novih ideja. Nastavnici su identificirali svoje osobne karakteristike kao najvažniji čimbenik u razvoju novih ideja (što je kod učenika bilo na drugom mjestu), dok je obitelj bila na sedmom mjestu s obzirom na važnost (prosjeci za oba čimbenika prikazani su u Tablici 2). Nakon osobnih karakteristika, sljedeći po važnosti bili su hobiji i aktivnosti izvan škole i čimbenici koji mogu biti povezani sa stručnim radom, uključujući sudjelovanje u istraživačkim projektima (prosjek za taj čimbenik prikazan je u Tablici 2). Korištenje IKT, što su učenici naveli kao čimbenik koji je po važnosti treći, nastavnici su procijenili kao manje važan, točnije stavili su ga na deseto mjesto.

Rasprava

Analiza unosa u dnevnik pokazala je da su poduzetnički krugovi dobrodošao način promidžbe inovacije unutar školskog okruženja. Oni također pokazuju da taj način rada potiče i prekomjernu količinu administrativnog posla. Drugi autori slažu se s tom tvrdnjom (Garavan i O’Cinneide, 1994; Honig i Karlsson, 2004; Kelley i Littman, 2005; Martin, 2004; Meinel i Leifer, 2011) nakon što su istražili da korištenje poslovnih planova u obrazovanju poduzetništva ne daje odgovarajuće rezultate. Fokusiraju se na kreativno rješavanje problema mladih, što je univerzalno primjenjiva vještina kao i suština poduzetničkog razmišljanja i djelovanja (Rauth i sur., 2010), koje već zauzima središnju ulogu u osnovnim i srednjim školama (Carroll i sur., 2010). Suština tog načina razmišljanja je aktivno podučavanje koje identificira činjenične probleme, probleme pojedinca ili skupine i za njih daje specifična rješenja.

Povezivanje škola s institucijama i pojedincima koji promoviraju učeničku kreativnost, inovaciju i suradnju s lokalnim društvima i organizacijama od velike je važnosti i ohrabrujuće je napomenuti da su se ravnatelji-ispitanici s tom tvrdnjom složili. To znači da se težište rada okreće prema zajednici u kojoj dolazi i do nekih odluka. Osim raznolikosti i širine suradnje slovenskih osnovnih škola i lokalne zajednice, pitanje je promoviraju li i koliko ti načini suradnje i razvijaju li inovaciju i poduzetništvo kod mladih osoba. Sumnja je opravdana jer je slika stvarne razine suradnje škola i poslovnog svijeta prilično drukčija. Velika većina škola ne traži povezanost s inovatorima, poduzetnicima pojedincima, tvrtkama, poslovnim udrugama ili institucijama uključenim u promoviranje razvoja poduzetništva u širem okruženju. Ako suradnja s takvim institucijama i postoji, ona nije jako izražajna.

Analizom intervjua s ravnateljima i poduzetnicima, koji je bio izrađen kako bismo pojasnili okolnosti tako slabe suradnje škola s poslovnim svijetom, identificirali smo dva šira uzroka. Prvo, postoji očit pritisak na škole koje zapravo nemaju znanje ili mogućnost za povezivanje s tvrtkama u široj zajednici. Drugo, postoji očit nedostatak

inicijative i odgovornosti poslovnog svijeta, koje ne traži povezivanje sa školama niti ih poziva na suradnju. Štoviše, poduzetnici i drugi često su preopterećeni svojim organizacijskim i financijskim problemima. Škole, kao institucije, žive prilično autonomno – ne osjećaju potrebu za otvaranjem i potrebu ići u korak sa životnim trendovima u Sloveniji. „Industrijski model razmišljanja“, koji nedovoljno naglašava stavljajući na fleksibilnost i inovaciju, još je uvijek dominantan. Zakonodavstvo i propisi točno diktiraju način života i rada škole, standardi znanja detaljno su definirani, a odgovori ponuđeni na zadnjim stranicama udžbenika. Sve to znači da je nastavnik naprosto vod kroz koji prolaze upute „od vrha prema dolje“. Tim činom gubi se energija, autoritet opada i stručni integritet nastavnika je uništen; nastupa osjećaj preopterećenosti i nemoći. Sve to ometa razvoj kreativnosti i inovacije među mladima. Istovremeno, nedostaju primjerene smjernice koje bi potaknule razvoj strategije za obuku i motiviranje mladih u inovaciji i poduzetništvu. Također nedostaje svijest o važnosti povezivanja obrazovnog sustava s tržištem rada. Jasno postoji potreba za vanjskim inicijativama koje djeluju konkretno kako bi povezale škole s poslovnim svijetom i na taj način potaknule područje najbolje prakse koja će pomoći mladima da zamišljeno pretvore u djelo. To podrazumijeva stvaranje kreativnog okruženja koje može povezati i usmjeriti kolektivne procese i potaknuti zajedničko djelovanje sudionika u tim procesima (Krogh i sur., 2000).

Ne iznenađuje da su ravnatelji naveli nastavnike kao najvažniji čimbenik u promidžbi inovacije u školama. Nastavnici su svakodnevno u kontaktu s učenicima i znaju da za svako rješenje postoje mnogi potencijalni putovi koji dovode do cilja. Pitanje je jesu li i u kojoj mjeri nastavnici svjesni dodatne vrijednosti koju nudi kreativan i inovativan pristup. Primjenjuju li to u svakodnevnom radu i ako primjenjuju, na koji način? Promatranja pokazuju da u nekim mjestima ne postoji dovoljna osviještenost o tome što dovodi do neuspjeha kod pretvaranja ideja u djelo.

Sljedeći čimbenik bitan kod poticanja razvoja kreativnosti i inovacije jest stupanj autonomije koji škola uživa. Shapiro (2011) smatra da je autonomija ključni faktor u institucionalnom razvoju inovacije. Kako se to određuje unutar uprave škole, također je važno i podrazumijeva pitanje mjere do koje nastavnici, kao stručnjaci, provode svoje pravo stručne odluke, koliko je autonomna škola, kako škola i nastavnici shvaćaju autonomiju i jesu li je spremni prihvatiti i provoditi kao dio vlastite odgovornosti. Činjenica je da su danas škole u Sloveniji ograničene brojnim administrativnim propisima koji izravno ili neizravno reguliraju i obrazovni sustav (Cerar, 2011) i obrazovni proces pretvara u birokraciju. To ograničava nastavnikovo pravo „rukovođenja“ i učestalo ih sprečava u donošenju ispravnih odluka i u iskazivanju količine slobode koja je dovoljna da bi im omogućila stvaranje visokokvalitetnog obrazovnog procesa. Ponekad je to također zgodno opravdanje za mnoge nastavnike koji ne žele preuzeti odgovornost koja dolazi sa samostalnim donošenjem odluka.

Treći faktor bitan kod promoviranja inovacije u školama jest lokalna zajednica. Trenutni teški uvjeti poslovanja nalažu od lokalne zajednice i regije povećanje

konkurentnosti. To znači da moraju sagledati svoje razvojne potencijale i imati odgovarajuću razvojnu strategiju. Ne mogu samo čekati i računati na pomoć države koja je – s obzirom na mnoge probleme s kojima se suočava na makro-razini – pod pritiskom da se bavi lokalnim problemima, unatoč činjenici da zadaće koje ima uključuju korištenje poboljšane razvojne strategije kako bi potaknule tvrtke da se razvijaju i napreduju. Svaka regija mora osnovati razvojne skupine, usvojiti odgovarajuću razvojnu strategiju i postići dogovor unutar regije o koordinaciji djelovanja (Cankar i sur., 2011, Setnikar Cankar i sur., 2013). To naravno podrazumijeva suradnju sa školama.

Čimbenik koji nedvojbeno djeluje na poticanju ili sprečavanju inovacije među mladima je školski kurikulum, posebno njegova implementacija (Gotvassli, 2008). No, iz toga proizlaze mnoga pitanja, a jedno je od najčešćih kako nastavnici shvaćaju pojam znanja i kako ga učenicima prenose. To je nešto što dolazi isključivo od njih – oni su pokretači znanja i odlučuju što je dobro, a što nije. Upravo to dovodi do „zatvorene“ nastave i rigidnog poretka prema promoviranju učeničke kreativnosti. Alternativno, poimaju znanje kao komuniciranje osnovnih podataka učenicima, a dubina i širina znanja, kao i način na koji se uključuje u prethodno znanje ovisi o pojedincu, njegovu položaju u skupini, pomoći nastavnika i životnog stila kod kuće (Plut-Pregelj, 1999). „Otvorena“ nastava te vrste neophodna je za razvoj učeničke kreativnosti i može se ostvariti samo izravnim doticajem s učenicima, a to znači da je ključno ono što se zbiva u razredu.

Čimbenici koje su ravnatelji označili kao one koji najviše otežavaju razvoj inovacije bili su prekomjerna administracija i obrazovno zakonodavstvo. Uzrok je u glavnoj, ako ne i fundamentalnoj slabosti slovenskoga školskog sustava – rigidnosti ili „industrijskom modelu razmišljanja“ koji isključuje fleksibilnost i inovaciju. Nastavnici mogu djelovati samo kao izvoditelji onoga što je točno propisano „odozgo“. To troši vrijeme i energiju i šteti nastavničkom autoritetu i istovremeno poništava nastavnikove stručne funkcije i odgovornosti. Također, blokira razvoj učeničke kreativnosti jer stvara prepreke za oblikovanje okruženja za promoviranje novih ideja, znatiželju i inovacije.

Nastavnici koji su sudjelovali u projektu i koji su vodili poduzetničke krugove značajno su se razlikovali od ostalih kolega u mnogim područjima koja su važna za razvoj inovacije. Najviše kritike imali su za silabe koje su smatrali predetaljnima da bi omogućili visokokvalitetan rad s učenicima, previše propisanog karaktera i da ne ostavljaju prostora za proizvoljni sadržaj. To otežava nastavnicima da više vremena posvete temama koje nisu izravno povezane sa silabom. Činjenica je da slovenske škole još uvijek nisu na pravi način shvatile vezu između njihove uloge kao djelatnika znanja mladim ljudima i njihovu ulogu kao odgajatelja kreativnosti i inovacije. Procesuiranje velikih količina podataka ne podrazumijeva nužno više znanja ako nastavnik i učenik nemaju priliku smjestiti te podatke u primjereni kontekst i razumjeti ih. Jedan od razloga zbog kojih do toga dolazi jest nedvojbeno uvjerenje ili kultura koja je postojala

posljednjih godina u praksi slovenskih škola: od vitalne važnosti je da učenici usvoje specifična znanja koja im omogućuju napredak unutar školskog sustava. Takav koncept učenike dovodi do stanja u kojem su strogo klasificirani prema sposobnosti, a ideja cjeloživotnog učenja i logička podloga „podučavanja za život“ narušena su.

Drugo bitno područje u kojem se stavovi nastavnika-mentora značajno razlikuju od stavova njihovih kolega jest njihov stav prema suradnji s učenicima u nastavi. Jasno je da su nastavnici-mentori otvoreniji i spremniji prihvatiti ideje učenika, dok istovremeno od njih imaju i veća očekivanja. Oni se također češće u nastavi služe IKT i spremnije uključuju učenike u projektni rad. Nastavnici-mentori koji su vodili poduzetničke krugove manje vjerojatno pripisuju otvoreno razmišljanje i inovaciju školama i istovremeno vjeruju da su njihove škole manje tolerantne prema pogreškama, dok će više nego njihovi kolege spomenuti disciplinu kao karakteristiku škole. Oni smatraju da obitelj, uz osobne karakteristike, odnosno kućna atmosfera, ima veliki utjecaj na promidžbu inovacije. Postoji statistički značajna razlika među mentorima i ostalim nastavnicima u pogledima na tvrdnju da su istraživački projekti i ponude za sudjelovanjem u projektima važni čimbenici u promidžbi inovacije među učenicima.

Stavovi koje su izrazili nastavnici-mentori su ohrabrujući, jer pokazuju da su oni svjesni toga da škola koja oblikuje učenike u standardizirane modele razmišljanja, načine razmišljanja i rješavanja problema kod učenika zapravo blokira kreativnost. To se, naravno, ne odnosi samo na slovenske osnovne škole. Puno drugih školskih sustava suočava se s ozbiljnim problemima kada pokušavaju pronaći ravnotežu između razvoja prikladnog znanja i vještina i promidžbe učeničke kreativnosti. Upravo je to jedna od najvećih pogrešaka za koju smo svi odgovorni. Učenici uče da će, kada rade i razmišljaju o stvarima na „pravilan“ način, biti nagrađeni dobrim ocjenama, dok su kažnjeni za ponašanje i razmišljanje na „pogrešan“ način (Robinson, 2010). S jedne strane, taj način poticanja znači fokusiranje na motivaciju mladih koja u njihovu školskom radu kreće iznutra prema van, dok vanjska motivacija postupno zamjenjuje unutarnju motivaciju ako se težište stavlja na školske ocjene. Učenici koji nauče da postoji „pravilan“ i „pogrešan“ način razmišljanja, postaju sigurni u tome da su različiti načini razmišljanja i druga rješenja pogrešni. Kada ono što je drukčije postane „pogrešno“ i obično se na to nadovezuje kazna u obliku niže ocjene, onda se učenička kreativnost i inovacija ne mogu razviti na najbolji mogući način. Zašto bi učenik riskirao i bio inovativan ako to dovodi do kazne, odnosno niže ocjene?

Nastavnici-mentori su značajno različiti od nasumce birane skupine nastavnika u još jednom bitnom području, području bez kojega ne može biti razvoja kreativnosti i inovacije: toleriranju učeničkih pogrešaka u radu. Čini se da se škole danas ne odnose baš prijateljski prema pogreškama. Učenici brzo nauče da ne smiju griješiti jer su posljedice obično niske ocjene. Također brzo uvide da je u školi bolje ne raditi ništa nego pogriješiti. Kada učenici uvide da nije vrijedno riskirati i učiniti pogrešku, oni naprosto prestanu pokušavati te prestanu biti znatiželjni, kreativni, originalni i

inovativni. Prema Robinsonu (2011), dok ljudi ne uče biti kreativni, postaju manje kreativni. Škole nas mogu „odučiti“ kreativnosti – ne škola *per se*, nego škole koje imamo, škole ranog industrijskog perioda. Posljednjih godina te su škole pomalo obnovile svoje pristupe, ali ne i osnovnu filozofiju koja još uvijek poima školu kao tvornicu za proizvodnju mladih ljudi opremljenih dostatnim „znanjem“.

Kreativnost i inovacija tipični su za kulture koje promiču riskiranje za razliku od izbjegavanja. Istraživanja (Ferrari i sur., 2009) upućuju na to da su vještine riskiranja i istraživanja – koje su osnove kreativnosti i inovacije – suprotne od tipičnih vrijednosti škola kao što su poslušnost i disciplina. Tolerantna okolina ili kultura iznimno je važna: okolina koja omogućuje ljudima da prepoznaju autentično i što je prava usklađenost. Kreativna kultura nudi mnogo prilika pojedincima da se uključe, izgrađuju znanje i pregovaraju. Njom dominira otvorena komunikacija na svim razinama stavljajući povjerenje, promicanje razlika i razumijevanje odnosa ljudi i kultura na središnje mjesto. Koliko je rukovodstvo škole otvoreno prema vrstama inovacije također je bitna činjenica. Ako je rukovodstvo otvoreno, može doći do mnogih promjena; ako nije, ne možemo se nadati velikim promjenama.

Naposljetku, autori su također bili zainteresirani za identificiranje čimbenika ili ljudi koji su potaknuli učenike na stvaranje novih ideja. Učenici smatraju da je najveći doprinos došao upravo iz njihovih obitelji, njihovih osobnih karakteristika i zbog korištenja IKT, dok su rad u nastavi, na seminarima ili zadaća imali najmanji doprinos. Učeničke kritike na nastavu nisu iznenađujuće: jasno je da je učenicima još uvijek teško iskazati se na nestandardne načine unutar školskog sustava. Nastava utemeljena na školskim predmetima i ograničena rasporedom ne pruža puno izazova kada je riječ o izražavanju kreativnosti i inovacije. To ne znači da je škola teška, nego da očito postoji „nešto“ što kod učenika stvara otpor i daje im osjećaj preopterećenosti. To „nešto“ je prekomjerna količina podataka i informacije, kao i načina na koji se prenosi (Musek Lešnik, 2011). Današnji učenici ne razlikuju se od učenika prije dva desetljeća. Međutim, svijet u kojemu žive i u kojem rastu se promijenio, a to znači da mu se i škole moraju prilagoditi.

Zaključak

Na temelju rezultata možemo pretpostaviti da na sudjelovanje škola i lokalne zajednice u promicanju kreativnosti i inovacije utječe mreža društvenih okolnosti koje su povezane s iskustvima suradnika. Iako su poduzetnički krugovi dobrodošao način promoviranja inovacije i poduzetništva unutar škola, u smislu traženja trajnih rješenja, teorija i praksa daleko su ih premašile. U središtu novih razvoja jesu pristupi koji ističu kreativno rješavanje problema među mladima, što je opće primjenjiva vještina, ali i ključ poduzetničkog razmišljanja i djelovanja.

Većina škola ne uspije realizirati suradnju i veze s inovatorima, pojedincima u trgovini, tvrtkama, poslovnim udrugama i institucijama koje promiču razvoj poduzetništva unutar šire zajednice. Istraživanja su ukazala na nedostatak

osviještenosti o važnosti povezivanja obrazovnog sustava s tržištem rada. Ravnatelji su kao najznačajnije čimbenike promicanja inovacije u školama naveli osposobljene nastavnike, autonomiju škole, lokalnu zajednicu i kurikulum. Među čimbenicima koje su naveli kao najveće prepreke za razvoj inovacije su prekomjerna administracija i obrazovna politika.

Nastavnici koji su vodili poduzetničke krugove značajno su se razlikovali od svojih kolega jer su bili kritičniji prema silabima, koje su smatrali previše detaljnima. Mentori su više skloni prihvatiti učeničke ideje, češće koristiti IKT u nastavi, uključivati učenike u projektni rad, a manje su skloni školama pripisati otvoreno razmišljanje i inovaciju. Nešto kritičniji pogledi nastavnika mentora očituju se u njihovim pogledima na to da su škole manje tolerantne na pogreške i da previše važnosti pridaju disciplini. Unatoč nekim ograničenjima, rezultati ukazuju na to da su nastavnici s iskustvom i oni skloni inovaciji važan element inovativnog rada. Nastavnici koji su sudjelovali u planiranim aktivnostima za promidžbu razvoja kreativnosti i inovacije misle i djeluju drukčije, što upućuje na to da se kreativnost i inovacija mogu razviti poticanjem stimulirajućeg okruženja. Škole se moraju razvijati na način na koji će zblížiti stručnjake i znanje.

Učenici vjeruju da najveći doprinos dolazi iz obitelji, njihovih osobnih karakteristika i korištenja IKT, dok su nastava u školi, seminari te ostale zadaće zapravo najmanje pridonijele razvoju kreativnosti i inovacije. Jasno je da se unutar školskog sustava učenicima još uvijek teško izraziti na nestandardni način. Postoji potreba za ozbiljnim promišljanjem mogućnosti i načina na koji se učenici mogu uključiti u aktivnosti vezane uz inovativno rješavanje problema. Primjereni inicijalni način mogao bi biti planiranje i implementacija izbornog predmeta koji bi postupno utjecao na podučavanje i učenje u školama.

Unatoč mnogim ograničenjima koja se nalaze na putu obrazovne inovacije u školama, ohrabrujuće je da se bitne promjene u školama podudaraju sa značajnim promjenama u društvenim, ekonomskim i političkim trendovima u društvu i institucijama (Di Maggio i Powell, 1983). Globalna ekonomska kriza prizvala je pozitivan sukob koji bi mogao olakšati uvođenje inovativnih promjena u škole. U budućnosti, razvoj pojedinca i njihove vještine cjeloživotnog učenja bit će istaknute uz osposobljavanje, kako bi se povećala dodatna vrijednost i fleksibilnost tržišta rada.