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MODEL OF CLUSTER INITIATIVE IN EDUCATIONAL SYSTEM - RESEARCH ON EDUCATION IN CONJUNCTION WITH LABOUR MARKET

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MODEL OF CLUSTER INITIATIVE IN EDUCATIONAL SYSTEM – RESEARCH ON EDUCATION IN CONJUNCTION WITH LABOUR MARKET

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Summary

The paper presents good practices in vocational education to implement in the creation of cluster initiative. The proposal to adapt the education to labour market requirements is based on integrated research and monitoring on cluster initiative's participants. They are: pupils, educational area (mainly: schools directors and teachers), employers and local governments. The paper also highlights the model of cluster initiative in education. Indicated operations, processes and role of participants in cluster initiative will help to create the expert system to support educational management in conjunction with labour market needs.

1. Introduction

Problems connected with vocational education in conjunction with labour market requirements have a big influence on local economy. Author, on the basis of research, make an effort to create educational cluster initiative to adjust vocational educational to labour market requirements. The paper presents a part of research of the project "Creation the cluster initiatives in education system". The project is carrying out in Silesian University of Technology, in Faculty of Organization and Management, Institute of Production Engineering and is financed by Ministry of Science and Higher Education (no 0193/B/H03/2010/39).

Local governments in the vocational education area try to meet pupils' educational needs. But those needs are usually not compatible with society's needs. For many years general education has been more popular than vocational one. Forthcoming demographical gap will have a great influence on situation in education¹. Some local governments adjust the structure

¹Pradela A., 2009, *Educational management adjusted to labour market*. Gliwice: Skalmierski Publishing House.

of schools to pupils' needs (through opening new general secondary schools and new classes in existing general secondary schools). In that way vocational schools loses pupils, as a consequence teachers became unemployed and schools are closed. This is because: firstly the vocational education is not popular (society pressure on general education is very strong) and secondly: the general opinion is that vocational education is for poor pupils and there is no appreciation for vocational education and for qualified workers as well. Vocational schools have to improve their promotion among parents and pupils of lower secondary schools. This was neglected mostly because graduates aspire to continue education at universities and they are not looking for a job just after living schools. To make the promotion efficiently there is need the knowledge of labour market requirements and corporation between schools and employers².

On the other hand employers indicate problems with finding qualified workers with particular knowledge, skills, licenses and attitudes like: ability to make decisions, flexibility and creativity. Some employers are also are looking for opportunities to cooperate with schools to employ pupils for vocational training and meet difficulties at schools.

2. Arthur's decision – description of research problem

One of my duty during work with students at The University is tutoring the last year's students working on diploma project (graduates receive the bachelor title). One of my student – Arthur – is really good mechanic in a big industrial company. At the age of 35 years he decided to study administration at The University. The diploma he was working on were concentrated on entrepreneurship problems. The topic was difficult for him and Arthur did the hard work but the diploma was very weak. The question was: why the good, qualified, experienced mechanic decided to study administration? He will never work with anything connected with what he studied, he is not good at administration work and he does not like it. Why young people make such irrational decisions and what are the reasons and consequences of them?

Reasons of this decision can be following: (1) interests (not in this example), (2) society pressure, (3) belief that a present job is not worthy and intention to improve qualifications, (4) to get the high degree no matter in what subject. What are the consequences of decision? Consequences for Arthur: frustration, because he will never work in any administration, he

²Diagnosis of vocational education in Gliwice. City Hall in Gliwice, April 2010.

will not be appreciated at work, his salary will not increase and he will not get promotion at work. Arthur spent 60 weekends on studying administration (excluding time spent on individual studying, preparing to exams) and spent circa 3000 Euro (during 3 years of studying he paid for education 20% of his monthly income). Arthur does not have satisfaction, because there are no profits coming from his degree, frustration gets deeper and deeper. Consequences for the economy: worker has not improved his present qualifications. There are no advantages for the economy. Innovative economy needs workers with high qualifications, but not workers with education but without skills. In this case, only the education system earned on Arthur's education.

Arthur is not an exception, younger students in lower secondary schools have a great problem with choosing the right school to continue education.

According to researches the most important problems in management in the area of vocational education belong:

1. Increasing number of lower secondary schools graduates choosing general secondary schools and willing to continue education at universities.
2. Decreasing interest of vocational education.
3. Lack of information of labour market requirements and very inefficient cooperation between labour market and educational system.
4. Graduates knowledge, qualifications, skills and attitudes does meet labour market needs.

Problem 1: A popularity of general education.

72% graduates of lower secondary schools choose the general secondary school, 68% graduates of technical and vocational secondary schools are going to continue education (out of which 39% will continue university education) and only 37% is going to get the job. 57% graduates of basic vocational schools is going to continue education and only 41,3% is going to get the job³. General education allows to put aside decision connected with the question: What will I do after school, what I want and how I want to work?

Problem 2: Decreasing interest of vocational education.

In the social opinion vocational education is for weak pupils. It is said: "if someone is bad student he goes to vocational school". Qualified workers are not appreciate in society, they are not treated with respect. Frustration starts at schools where teachers treat those pupils with no respect and the problem increases.

³ Pradela A., 2009, *Educational management...*, *op. cit.*

Problem 3: Lack of information of labour market requirements and very inefficient cooperation between labour market and educational system.

There were carried out projects cofounded by European Found System to research labour market for vocational education. Those analysis are used by local governments but they are not orientated on solving particular problem and are usually very general. Corporation between schools and employers is very often in one direction.

Problem 4: Graduates qualifications, knowledge, skills and attitudes does meet labour market needs. This is a conclusion of recent Author's research on the group of 103 employers.

3. From conclusion to solution - to develop vocational education

Analysis of existing solutions in vocational education were concentrated on identification of cooperation between potential participants of cluster initiative.

To explain the idea of support of creation the cluster initiatives in education there is need to present three different examples of cooperation between education and labour market.

The research helped to draw a map of categories of solutions (Fig. 1)

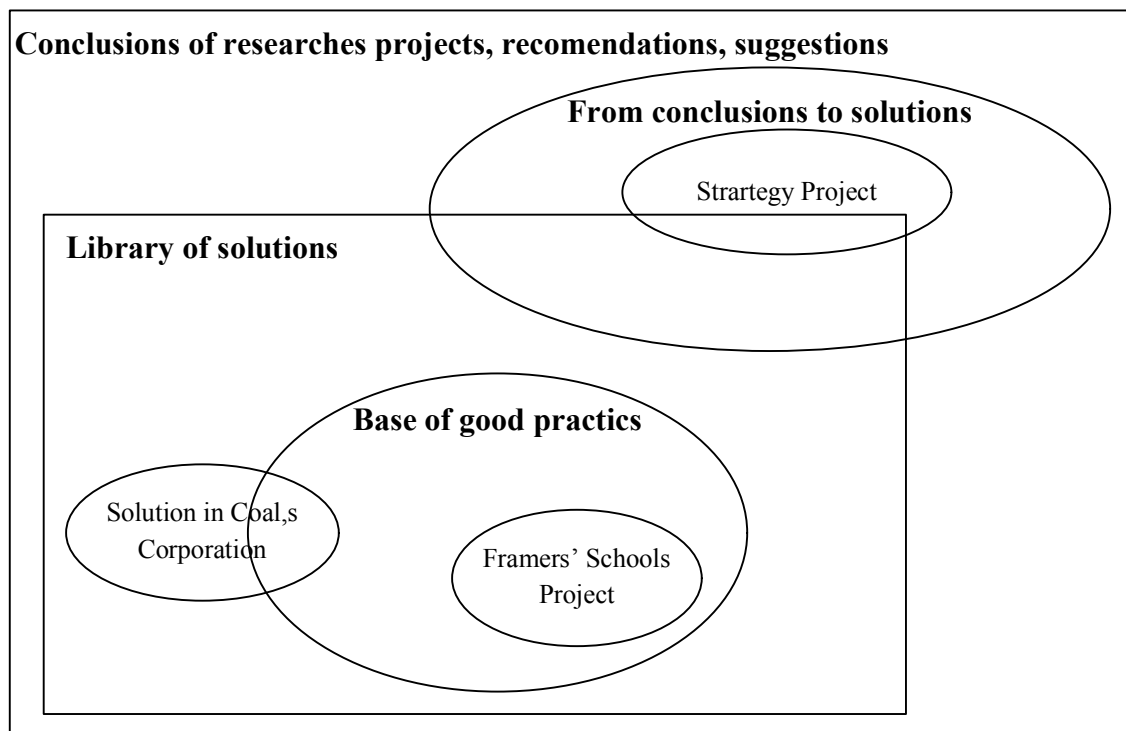


Fig. 1. Map of solutions in vocational education for labour market.

Thanks to European Found System there are caring out many research projects in educational area and to develop the quality of education. Analysis of results of those projects

draw a conclusion that they are finished with recommendations, suggestions and conclusions (the biggest rectangle in Fig 2). There are not enough precise proposals of solutions. Such projects give a lot of information but they will not be implemented. Clerks (in local governments, in schools) need solutions and tools easy and intuitive to use. In Fig. 1 *The library of solutions* contains *base of good practices* – very useful but the narrowest group.

Strategy Project was to create the strategy in one of Silesian big cities. Like many others belonging to this group this project is finished with conclusions and recommendations and do not indicate any concepts of solutions any tools. Such recommendations are not useful. Clerks in local governments and schools will not deal with difficulties on the basis of research, that is not their job. That's why in Author's opinion this project belongs to not good examples. The tool for clerks should not be finished with not only what to do but how to do.

The second example: *The Solution in Coal Corporation* is a good example but to implement in specific environment. Coal Corporation employs 22 500 employees. They have an agreement with vocational schools and every year the coal corporation give an offer to employ particular number of graduates. In that way vocational schools accept the amount of graduates that will have job guarantee. The first month the graduate work with instructor, after that he became a member of regular brigade. All new workers have contracts for half of the year. The system of salary system is motivational and graduates are treated as any other worker. It is shown that big company wants to cooperate with schools and employ graduates despite many job offers given by experienced coalminers. The most important is that coal corporation gives the real human resources requirements and schools teaches exactly in accordance with them. The coal corporation trusts the educational system and do not interfere into educational program and into organization of practices. The criteria for graduate are: passed vocational exam and good mark of behavior. This idea, when employer guarantees employment can be implemented by groups of companies (e.g. grouped in sectors, geographical location, engaged in project) but so far that does not exist.

To the good practices belongs *Farmers' Schools Project* titled: "Professional vocational trainings – chances for graduates" (cofounded by Human Capital Program). The project was to organize professional vocational training for 68 pupils from two Farmers Schools. They were working in horse riding, stud farm and horse agribusiness centre to get qualification of groom, stableman, coach assistant and blacksmith's assistant. The program consisted of 30% of theoretical trainings, 50% of work and 20% of horse riding training in groups of 8-10 pupils (in total 120 hours per pupil). Unfortunately the project was carried out only once, clerks twice refused to finance the project, unwilling to cover the costs of training rooms.

This is an example of initiative which can be developed into cluster initiative. All potential participants of cluster initiative were engaged and cooperated with each other. Program was created together with schools and employers. Vocational trainings were organized for all pupils in the same time and did not disorganized regular lessons at schools. Pupils got practical qualifications and were really interested in their training and employers helped to qualify future workers or future entrepreneurs. Project costed 50 000 Euro, this is 735 Euro per pupil. This is too much for inadequately financed polish educational system. This idea is universal and can be implemented in any vocational school. Cluster initiatives in education should be developed should be developed on the basis of described project.

One of the elements of creation of cluster initiatives in educational system is analysis of good practices. Three model solutions helped to indicate elements (activities, processes, ideas, tools) which can be implemented (without many changes), can be improved and should be avoided in the creation of cluster initiative (Tab. 1).

Tab. 1. Analysis of model solutions in the creation of cluster initiatives in education.

	Process, operation, idea, tool	To implement	To improve	To avoid
Strategy Project	Analysis of education area and labour market institutions	X		
	To involve education and labour market institutions into discussion about indicated problems	X		
	Creation of conclusion and recommendations for local governments (<i>make them more precise</i>)		X	
	Unfinished research and projects (<i>should be finished with solution or tools – suggestions are not enough for clerks</i>)			X
Solution in Coal's Corporation	Offer to employ particular number of graduates	X		
	Organization of work of graduates (supervisory of instructor)	X		
	Quick join of graduates to regular work (including all rights and duties)	X		
	Vocational training in corporation with employer (<i>employer should interfere in training program</i>)		X	
	Back information about graduates skills, knowledge and attitudes for schools (<i>improve the educational process</i>)		X	
	Ability to implement the solution in other environment (e.g. group of employers)		X	

Tab. 1. Analysis of model solutions in the creation of cluster initiatives in education.

Farmers' Schools Project	Organization of professional trainings (adjusted to pupils, employer's needs and schools requirements)	X		
	Program of training is a combined operation of schools and employers	X		
	Corporation between schools, employer and local government	X		
	Very good communication between all institutions and participants			
	Rules of financing		X	

4. Operations and processes to create cluster initiatives in educational system

Four groups of institutions and people are engaged in making decisions on preparing pupils to enter the labour market. The participants of cluster initiative in educational system:

- Local government - responsible for educational management concentrated on organizational, merit and financial supervisory.
- Educational area - directors of schools, teachers (especially: vocational subjects' teachers) and vocational tutors.
- Pupils and parents - choosing schools and ways of careers without adequate help from educational institutions about labour market requirements.
- Employers - taking care of students during vocational trainings and employing graduates.

All groups intend to fulfill their requirements and have their specific motivation. The idea of creation cluster initiative to make vocational education more effective and adapted to labour market needs is, so far, not described in any literature. The term *cluster* is connected with various sectors of industry. Technological, business clusters are widely described in literature and are popular in scientific research⁴ but creation of educational clusters or cluster initiatives are not considered.

⁴ European Commission, Regional Clusters in Europe, 2002, *Observatory of European SMEs*, Brussels, No 3, p. 24-25; Porter, M. E., 1990, *The Competitive Advantage of Nations*. New York: Free Press; Sölvell Ö., Lindqvist G., Ketels C., 2003, *The Cluster Initiative Greenbook. Cluster Initiatives in developing and transition economies*. Stockholm: Bromma tryck AB; Sainsbury L.: *A Practical Guide to Cluster Development*, A Report to the Department of Trade and Industry and the English RDAs by Ecotec Research & Consulting; Skawińska E., Zalewski R., 2009, *Business cluster In development of competitiveness and innovationess of regions*. Warsaw: PWE; Mikołajczyk B., Kurczewska A., Fila J., 2009, *Clusters. Case studies*. Warszawa: Difin; Strzelecki Z., et al., 2008, *Regional and local economy*. Warsaw: PWN; Bojar E., Olesinski Z., 2007, *The emergence and development of*

Theoretical aspect of cluster formation and functioning does not exclude ability to create cluster initiatives in education area⁵. The essence of formation the educational cluster initiatives is voluntary agreement between cluster initiative participants to cooperate to achieve particular aims⁶. The Fig. 2. presents the model of cluster initiative in educational system.

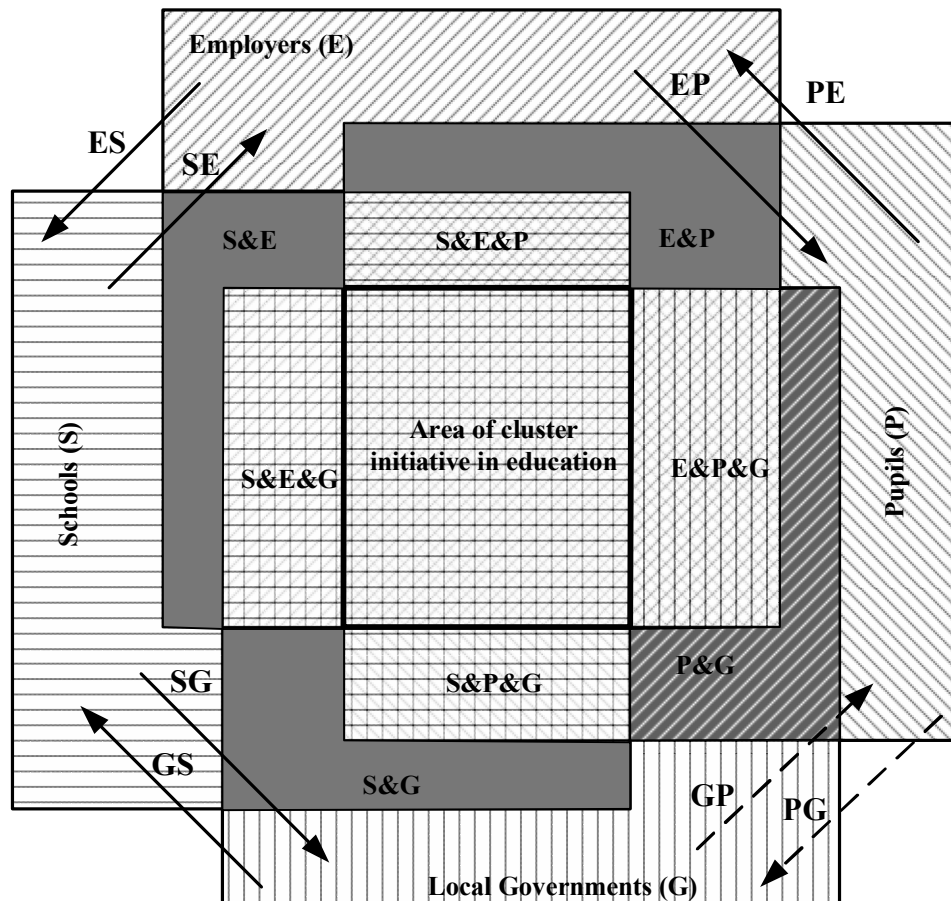


Fig. 2. Model of cluster initiative in educational system.

Sectors marked with S&E (schools and employers), E&P (employers and pupils), S&G (schools and local governments) presents current activity of educational system. Operations, processes and decisions carry out in those areas are the basis of effective functioning of educational system. Area S&E presents relations between schools and employers indicated in research on employers, schools directors and teachers and clerks of local governments in

clusters in Poland. Warsaw: Difin; Woodward D., 2004, *Porter's Cluster Strategy Versus Industrial Targeting*. Presentation at ICIT Workshop, Orlando.

⁵ Porter, M. E., 1990, *The Competitive...*, *op. cit.*; Skawińska E., Zalewski R., 2009, *Business cluster...*, *op. cit.*; Bojar E., Olesinski Z., 2007, *The emergence and development...*, *op. cit.*

⁶ Porter, M. E., 1990, *The Competitive...*, *op. cit.*

Silesia region. Employers, especially from public sector, make an effort to cooperate with schools. They state that schools are not interested in cooperation and pupils have to look for entrepreneurs to complete vocational training individually. Employers conclude that vocational training is badly organized. Pupils are sent irregularly what disorganizes work of employer. On the other hand schools intend to cooperate with employers, but are not going to involve so much. Unfortunately, schools and pupils treat vocational training as mere formality (and for local government very expensive).

The research indicated the most important processes and operations of S&E sector:

- organization of vocational training,
- cooperation between schools and employers,
- creation of vocational education and vocational training programs,
- evaluation of vocational education (by employers) and creation of suggestions to improve the situation,
- formation classes with patronage, creation of the base of the most involved employers (in organization of vocational training and in employment of graduates).

Conclusion from recent research are following. According to Augustyn et al.⁷ only 30% of Silesian companies employ graduates. Employers state that graduates: do not have experience (40%) and vocational qualifications (16,8%). Less than 5% of employers indicated: wrong preparation to work, high costs of preparation of graduates to work, lack of motivation to work and lack of flexibility. In the scale: 2-5 to the high rated abilities belong: ability to learn (4,19 rate) and communicativeness (4,18 rate). The lowest rate received: vocational knowledge, practical skills, not to understand the requirements of labour market and economy. Employers suggestions: educational system has to pay more attention to vocational preparation of pupils (54,7%) and to make vocational trainings more effective (26,9%). Researchers interviewed 3201 employers in Silesia region. So far, the Author has been carried out research with 103 employers. 80 employers (77% of respondents) stated that that pupils and graduates of secondary schools do not have motivation to work and to learn and show no initiative.

Moreover schools do not cooperate with employers. Employers stated (70% of interviewed group of 103 employers) that schools are not interested in cooperation with employers and

⁷ Augustyn A., Gruszczyński L., Muster R., 2010, *Diagnosis of education and local and region and labour market in Silesia*. Katowice-Jastrzębie-Zdrój

organization of vocational training is very weak. Educational system does not feel the need of organizing good vocational trainings.

In E&P sector pupils organize vocation training individually. Processes and operations in E&P sector:

- to carry out vocational training,
- evaluation of vocational training (by pupils),
- evaluation of quality of vocational education (pupils are evaluated),
- employment of graduates and evaluation of graduates' qualifications.

S&G sector presents current activities caring out by schools and local governments. Corporation in this area comes from regulations of educational system⁸. The local government has the authority to set up and govern the schools.

P&G (pupils and local government) area is inactive. Pupils do not cooperate with local government very often. Problems unsolved at schools are transferred to local government. These are mostly complains, conflicts and problems which demand the intervention of authorities. The area P&G do not take part in the creation of cluster initiative.

In the Fig. 2 there are also presented areas of corporation with three participants. S&E&G (schools, employers and local governments) area will not work efficiently without participation of pupils. The best education system without knowledge about pupils needs will be incompleted. Research, cofounded by European Found System, found out pupils' plans of career. They are popular and are caring out in many regions. But this no regular monitoring of pupils requirements, reasons of choices the particular way of career and achievements of graduates. Those research are carrying out by universities but not in schools (so far, schools and local governments are not interested in it). Education system (school directors especially) is afraid of research conclusions.

S&E&P area exclude participation of local government, the institution responsible for financing schools. Any idea will not be implemented without source of financing.

S&P&G and E&P&G area are reduced to S&P and S&G, because pupils do not cooperate with local government regularly. E&P&G is reduced to described E&P and E&G. Any project cannot be carried out without schools efficiently.

⁸ Ustawa z dnia 7 września 1991 r. o systemie oświaty Dz.U.1991. 95. 425 ze zm. (Educational system regulation); Ustawa z dnia 26 stycznia 1982 r. - Karta Nauczyciela Dz.U.1982.3.19 ze zm. (Regulation of employment in educational system)

The middle part is the area of cluster initiative. Processes, decisions and operations are results of corporation between all participants. This the best, but the most difficult climate to start cluster initiative.

5. The idea of tool to create cluster initiatives in educational system

This part of paper presents the idea of support the cluster initiatives in educational system built on the basis of research.

For eight years of research on educational problems in conjunction with labour market conclusion has not been changed⁹. Despite many activities and projects (mostly cofounded by European Found System) there not enough of information to make decisions connected with educational management in conjunction with labour market effectively. In the research project “Creation the cluster initiatives in education system” there will be created the prototype of expert system to support both: creating cluster initiatives and caring out activities in the initiative.

The tool will have double role. Firstly it will help to create the cluster initiative, secondly it will help with educational management, making decisions, implementing processes and activities in cluster initiative to develop it.

Potential participants of cluster initiative (pupils, local governments, educational area, employers) will take part in integrated research. Their knowledge and opinions will be converted and transformed by the expert system. The basis of research is monitoring and analysis of needs and requirements of all potential participants of cluster initiative. Research will also give information about abilities to fulfill this requirements.

There will be created the paths and ways of communication between these four groups. A tool - the expert system - is a kind of toy for participants of cluster initiative. Participants will use the tool, create ideas to develop it, communicate with each other, make decisions in accordance with knowledge generated by expert system. This knowledge comes from their selves.

The system will support the following activities:

- Collection information from research on labour market requirements.
- Collection information form research on pupils and educational area, requirements and abilities of local government and labour market to fulfill those requirements.

⁹ Pradela A., 2009, *Educational management...*, *op. cit.*

- Support of planning the school nets. System will advice what occupations, specializations should be opened and what occupations and specializations are not correlated with labour market.
- Decision support of opening classes in needed occupations and close in occupations without perspectives on labour market.
- Support of adjustment educational offer to labour market requirements.
- Support of educational management in conjunction with labour market including needs and requirements of four participants of cluster initiative.
- Support of pupils decisions to choose the right way of career (school, occupation) connected with their needs, predispositions, abilities and labour market requirements (unknown nowadays).
- Support of broadcasting the vocational education.

Conclusion

Corporation between labour market institutions and educational system is not effective. Educational system adjust the school nets to pupils needs (increasing popularity of general education). Labour market needs – conclusion of recent research – are difficult to implement. Vocational education do not receive approval (is expensive for local governments, it is said that is for poor pupils). Analysis of solutions drew a conclusion that there are good examples implement. Research also indicated barriers and abilities of the implementation. The idea of expert system is to activate communication between potential participant in cluster initiative. Making decisions on the basis of scientific research will make them rational. A tool used by every participant will help to create cluster initiative in education (firstly very narrow, like in the example of Farmers' School Project) and to support functioning of the cluster initiative.

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