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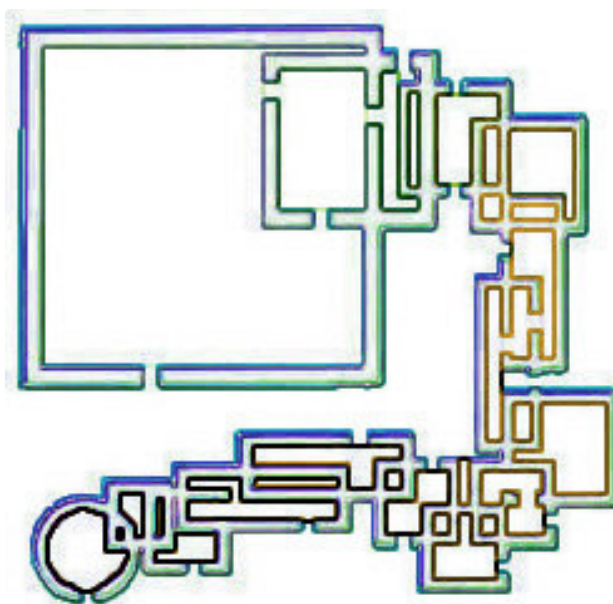


**Project founded by Ministry of sciences, education and sport**

**THE COMPULSORY EDUCATION MODEL  
– FEASIBILITY STUDY**

**The findings for the first research year**

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## INTRODUCTORY NOTES

The project “The compulsory education model” consist of the three subprojects:

- The structure of pre-tertiary schooling,
- Human resources and changes in Croatian school system,
- Economical and financial aspects of the educational reform in Croatia.

This *Report* will present the results that were accomplished in the first research year, and that already have a certain applicative value. They will be presented in the concise form. The more detailed information and data on certain problems can be found in partial studies. It was planned that the research will last two years, so that some of the conclusions are based on indicators that should be tested and supplemented in the continuation of the research.

It is believed that conducted analyses are stimulus for deeper discussions about certain structural problems in compulsory education. These analyses provide indicators that were missing from the earlier phases of national discussion on a school reform. The comparative analysis of European educational systems can facilitate acceptance of decisions that are based on the future needs.

In the first subproject, *The structure of pre-tertiary schooling*, the special attention was devoted to the explanations of a certain structural solutions present in European education. Hence, it is important to explain the reasons due to which primary education mainly lasts 6 years, the reasons due to which compulsory education mainly lasts 9 years, the reasons due to which internal differentiation is more appropriate than an explicit differentiation and the reasons because of which it is important to decrease variations between schools and decrease the impact of socio-economic status of parents on students’ achievement. These explanations were missing from the earlier analysis and discussions.

The subproject *Human resources and changes in Croatian school system* displays the professional structure in basic and secondary education with the goal to elaborate on the possibilities for managing the structural and qualitative changes in education with the current level of expertise. It is necessary to determine needs for teachers and experts, for the possible extension of primary and compulsory education. Special attention is devoted to the existing developmental infrastructure and ability of system for a change.

The subproject *Economical and financial aspects of the educational reform* started later than the other subprojects, so that it was not possible to rely on the findings of the subproject *Optimisation of school network in Croatia*, which was planned but it did not start at this point. Hence the presented results are partial.

*The report* is structured based on the subprojects and it consists of three parts in which their main results are displayed.

## SUMMARY

**The study *The structure of pre-tertiary education* consists of:** 1) an overview of common elements of educational policies in developed countries (European union member countries, and OECD countries), 2) an overview of structure of their educational systems, 3) educational quality indicators for the EU and OECD countries, 4) explanation of differences in quality of education in European countries and their influence on educational policies. Overviews of developmental trends of educational reforms in transitional countries are given with the intention to compare Croatia with countries that are facing similar developmental problems.

**The starting point for this analysis is a concept of a knowledge society whose main developmental resource is quality of human capital. The term human capital** is defined as «The knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being» (*Education Policy Analysis*, OECD, 2002. pp. 119). Lifelong learning can optimally develop human capital. Developed countries confirmed lifelong learning in 1990's, as a frame for their national educational policy.

**To achieve an optimal development of the quality of human capital on a national level, education is necessary to reach two strategic goals:**

- Raise an average quality of educational achievements for students and active citizens,
- Higher average educational quality should be obtained with lower differences in achievements of students that belong to different societal groups.

Without balanced achievements of students that belong to different groups, and relatively high average quality, it is not possible to achieve desirable national level of quality of human capital. In the developed societies this is achieved by obtaining the following four goals:

- Preparing the citizens for permanent employability,
- Readiness of citizens for active citizenship,
- Increase of social cohesion,
- Decrease in social exclusion.

The significant differences in educational achievements of students belonging to different societal groups, limits the possibility of the national goals to be reached.

**Dominant structure of European educational systems is as follows:**

- Primary education (that is organized in classroom teaching) takes 6 years.
- Basic (compulsory) education takes 9 or 10 years.
- Pre-tertiary education lasts 12 or 13 years (commonly it takes 12 years).
- Differentiation of programs and students is internal (except in Austria, Germany and Slovakia), and it is conducted during the lower secondary education (from 7<sup>th</sup> to 9<sup>th</sup> grade) by elective programs and by conducting multilevel teaching of the same programs.

**Classroom teaching begins from age 12, based on the phases of students' cognitive development,** in some countries it is combined with subject teaching on a second level of basic education (until 15/16 years of age). These countries have the highest scores on international test of educational quality.

**The compulsory basic (integrated) school is organized in at least 9 years, since that is how long is needed for students to acquire the new main competences, since defined based on national curricula of European countries.**

**The differences in quality of education of the developed (OECD) countries are assessed by the PISA study in the year 2000.** The appropriate additional analyses were used to identify main quality indicators. It has been determined that functional literacy national averages are less influenced by the level of expenditure per student (which explain the 19% variance in literacy), and that balanced quality of education between schools is more important, also differences between schools do not depend on average socio-economic position of parents of students that are attending a certain school.

**There is a tendency that a higher average national score is related to lower differences in achievement of students whose parents belong to higher or lower socio-economic groups.** Finland and Germany have similar investments according to number of students, nevertheless Finish students have higher achievements than German students. The correlation between societal background of finish students and their school achievement is the lowest, while this correlation is the highest in Germany. This is facilitated in Germany by an early external differentiation of students after the primary education that takes just 4 years.

**Other factors that influence national quality of education are level of school autonomy, equality in equipment of schools and teacher preparation.** Systematic measure that improves quality of national education is change of orientation of control in system from the system entrance and system processes on student achievement based on objective external evaluation.

With the goal of system quality improvement, most of European countries changed their evaluation systems relaying on external and transparent evaluation methods. This type of evaluation gives better results in systems in which schools have more freedom in determining their organization, contents and teaching methods.

**Most of the EU countries and half of the succession countries (that become EU members at this point of time) conduct an external evaluation and publicly announce the school results.** In some cases, at the end of secondary education, the results of external evaluations are not publicized. These results give schools an opportunity to find out about their rankings and to take actions for improvement of their students' achievements. Of course, individual students' results can be used for entrance into tertiary education.

**The usefulness of external evaluation is dependent on the level of school autonomy.** The autonomy is visible in management of financial resources, organization of educational processes, textbooks selection and methods of teaching, and election of employees (in a particular the school principal elections) and their training. Only in this case teachers and students creativity is enhanced, their potentials can further develop and their responsibility is increased. The correlation between school autonomy for some educational policy issues and average literacy on an international level are statistically significant and they are in the range 0.51 – 0.16.

**Educational policy in transitional countries is placed under more difficult conditions than the one in developed countries.** Transition demands higher quality of a human capital

and their educational structure is lower and there are less developmental resources. According to the international research, functional literacy of active population in these countries is lower than a literacy of the population in OECD countries (IALS 2000). The transitional countries that are entering European union followed the guidelines of the educational reform which EU countries completed in 1980's, so that neither of these countries has eight year compulsory education or an early external differentiation (except Slovakia). They are in the process or in the preparation period for the national curriculum reform and further restructuring of higher secondary education (ISCED 3).

## **Conclusion**

Although the international studies are not sufficient for a rational national educational policy, they can be useful. They display common problems in different countries and strategies that proved to be successful in the resolving of these problems. It is sensible to follow the successful examples, but it is necessary to recognize the conditions that have to be fulfilled so that the applied solution has a desirable outcome. Feasibility studies have a task to indicate the preconditions that have to be ensured, so that necessary changes have a positive outcome.

In the first year of this study the solutions used in the educationally most successful countries and those followed in most of the transitional countries that entered the European union are recognized. The explanations of efficiency of these solutions allows higher rationalization in choosing a solution that need to be selected based on laws that influence a system efficiency. In the second year of research it is necessary to specify the conditions (resources), which need to be provided for a successful implementation of the solutions that have a higher developmental potential. This type of additional elaboration should provide a source of performance modalities.

The short statements of **proposed changes are as follows:**

Extend the primary education from four to six years (classroom teaching should last six years instead of the current four years).

Extend the basic compulsory education from eight to nine years due to increased demands of main key competencies in a knowledge society. Optimisation of the school network should assure capacities for the ninth grade of a basic school.

It is necessary to provide a tenth year of compulsory education for some less complex vocations that are needed at the job market, for the students that are not planning to continue their higher secondary education.

Improve the ways of internal differentiation of students during the second level of basic education (ISCED 2) by use of elective programs and multilevel (two-level) teaching of the same programs.

Changes in a basic compulsory education are possible without changes in the main organizational structure of a basic school. Single structure basic school allows flexible internal differentiation that is based on elective programs and multilevel (at least two-level) teaching of the same programs. Further elaboration of this issue has to be conducted in continuation of the study.

Facilitate easier mobility between higher secondary education tracks (ISCED 3).  
Gradually implement external evaluation at the end of compulsory and not only upper secondary education.

Arrange conditions for adult education (change of qualification, training and additional education) so that it is easier to adjust to changes in the job market and permanently improve the quality of a national human capital. The training of adults has the highest impact on improvement of international economy competitiveness.

Optimising allocation of available money resources, so that response on budget limitations is appropriate (this part of the feasibility study started later and creation of alternative solutions is in a process). It is necessary to answer the question of leading criteria for distribution: students (voucher system), schools, municipality/town or region, or some combination of the named criteria.

## I. STRUCTURE OF PRE-TERTIARY EDUCATION

The following are the subproject tasks:

1. to provide an overview of common elements of educational policies in developed countries (European union countries, and OECD countries),
2. to provide an overview of their educational systems,
3. to provide an overview of quality indicators of educational system in the EU and OECD countries,
4. to provide an explain differences determined in quality of education of the analysed countries and point out the possible implications of these differences on educational policy.

Developmental trends in educational reforms of the transitional countries will be overviewed, so that the countries with similar developmental problems could be additionally compared.

Structures of European educational systems should be compared with the structure of Croatian education, in order to identify main structured differences (data on quality is non-existent for Croatia). This can also be used as an addition to the elements for forming the educational policy.

### I. 1. EDUCATIONAL POLICY IN EU AND OECD COUNTRIES

**Educational policy is a purposive set of actions directed towards accomplishment of educational system goals** (*Želvys*, 2003). Therefore, rational educational policy has to, primarily on a conceptual and then on an operational level, determine long-term and short-term educational goals following through consideration to make an appropriate choice.

In the last few years, as a part of European commission the intense processes were conducted, these processes are adjusting national educational policies and forming a common European educational policies for common goals and ways for their fulfilment.

Methodology and the content of operation of coordinative bodies are publicized in the annuals of Consortium of Institutions for Development and Research in Education in Europe - CIDREE (*Educational Ambitions for Europe*, 2003.).

#### I. 1.1. National development and quality of human potential

**In the Knowledge society and in the knowledge-based economy, general goal of education is improvement of quality of human capital on a national level and development of potentials of each individual.** At the current time, the main developmental resource for the country's national prosperity is not a land, raw materials and energy, but well educated and developmentally oriented people. «The largest advantage of the European union economic competitiveness is its capacity to create and use knowledge, by help of large working force potential and social consensus which establishes base for the use of these factors» (*Prema društvu koje uči*, 1996, pp. 55, *White Paper on Education and Training*, 1995).

**The human capital** is defined as “The knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being” (*Education Policy Analysis*, OECD, 2002. pp. 119). These characteristics are developed by all types of learning (formal, non-formal and informal) and based on inherited



dispositions, family background and influenced by other environmental factors. **Optimal way for development of human capital is lifelong education of population, which consists of all stated forms of education in equal proportions and not only of formal schooling.** Since learning should last throughout life, and it is not possible to attend a school all through life, formal schooling should be complemented with non-formal education and informal learning of adults (*Dohmen, 1996*).

The concept of lifelong learning is defined in 1970's by UNESCO's working bodies, and is recommended to all the members during the general meeting in the year 1970. In 1996, OECD Education Ministers adopted "lifelong learning for all" as a policy framework.

### **I. 1.2. Quality of human capital – high average quality of education and small differences in educational achievements**

**To ensure optimal development of quality of a human capital on a national level, it is necessary to use education for an achievement of two strategic goals:**

- Raising average quality of educational achievements of students and active population,
- Reaching the higher average educational quality with a less difference in achievements of students that belong to different societal groups.

**This implies that higher quality of achievement and equality of achievement should be two equally important goals of educational policy.** In this case, if two countries accomplish equal average quality of educational achievements, more effective system is in the country that has lower differences among national averages.

Which are the arguments used to plead this position, and is it possible to reach both of the mentioned goals simultaneously? There are positions suggesting that quality and equality are two separate goals, which are more excluding than supplemental. It is firstly necessary to explain the importance of the equality of students educational achievements related to a national average.

### **I. 1.3. The importance of equality of students' educational achievements related to national average**

In simple terms, **without equality of students' achievements, and relatively high average quality, it is not possible to achieve satisfactory national level quality of the human capital.** If European countries wish to optimally use their human resources, they should not allow differentiation of population on competent and incompetent citizens (*Key Competences, 2002*). This differentiation is possible when there is a large dispersion of educational achievements around national average. Negative impact of the large differences in achievements can be displayed in the case of any of the four goals of European education. These goals are as follows (*Towards the learning society, 1996*. and other European commission documents).

The goals of European education by which is possible to improve the quality of human capital can be placed in four basic areas:

- Training for permanent employability of active population,

- Training of population for active citizenship,
- Stronger social cohesion,
- Decrease in social exclusion.

**Education for permanent employability** is necessary in order to decrease unemployment on flexible job markets and increase competitiveness of European market in the conditions of globalisation. Since there will be less temporary jobs, it is important to be trained for a job search. **This can be achieved by extending basic education, and preparation for lifelong learning**, developing a system of non-formal education and system of support in informal learning. This decreases number of people in the zone of low functional literacy, which decreases range of differences around average level of educational achievements.

Population should be prepared for **the active democratic citizenship** and for the developing of open civil society. In democratic society **all citizens should participate in democratic political processes** and actively practice their political rights. This contributes to the social stability, sustainable development of economy, and life quality. Preparation for active citizenship is obtained through the means of lifelong education, which includes forms of non-formal education and informal learning of adults. High level of literacy, and reading literacy in particular, which is achieved in basic education, prepares for this type of a lifelong learning.

**Social cohesion** is a condition for social stability. This is attained by acquiring most important values, which reduce social conflicts in socially stratified society. European identity and stable functioning of a complex entity, such as European union, is achieved not only by reaching equality of economical and political conditions but also by sharing common European values based on human rights, multiculturalism, tolerance and other rules that are balancing interests within a complex societal entity.

**Education reduces social exclusion** of borderline societal groups and decreases a number of risk groups and therefore the cost of their inclusion and raising their quality of life would also decrease. Competitiveness in developed societies marginalized complete categories of population. In the last few years, social exclusion become widespread in Europe. In developed countries this has the largest impact on immigrants' children, population living in poor suburban areas, population living in remote areas of large cities, older unemployed people, youth which exited the educational system before getting their qualifications and women that are returning to the job market. In transition countries there is a large number of middle-age people who lost their jobs due to the restructuring of economy. They cannot find a new job and they become excluded from society. This group also includes specific socially non-integrated groups like Roma people, people with special needs, national minorities and people of different races, as well as large number of elderly people with working and other potentials. Socially excluded are on the literacy scale in the lowest zone, therefore that the range of educational achievements is also representative of the extent of social exclusion. That is most successfully reduced by lifelong learning.

After 1996, when ministers of education in OECD countries accepted "lifelong learning for all" as guidelines for implementation of national educational policies, the question of the best strategy to be used for the lifelong learning was raised. In 2001, the document was formulated with detailed guidelines based on positive experiences of countries which successfully used the concept of lifelong learning in their educational practice (*Education Policy Analysis*, OECD, 2001).

It is fundamental that “educational policy to a large extent incorporates the complete spectrum of learning: from the early childhood, primary, secondary and tertiary education, to adult education. Education should build strong foundations for further learning and enable people for continuous development of motivation and competency for managing their own learning”.

## **I. 2. STRUCTURE OF EDUCATIONAL SYSTEMS IN OECD COUNTRIES**

UNESCO in 1997, accepted International Standard Classification of Education (ISCED, 1997) as an international standard for collection and presentation of information on education (ISCED, 1997). It is significant that this document accepts the uniform classification of educational levels which allows comparisons of the formal structure of national school systems, and gives an uniform definition of forms of education in which lifelong learning is conducted (formal, non-formal and informal learning).

**Schooling is one of the three forms of lifelong learning.** Lifelong learning is accomplished by formal, non-formal and informal learning, therefore educational system incorporates all mentioned forms and not only schooling. The schooling is the most organized form used for preparing a person for main life roles and enabling him/her for further learning, and because of its importance some parts of schooling are obligatory. Throughout the last few decades, the structure (organization) of school system was stabilized in the majority of developed countries. Currently, there are ongoing curricular changes and changes in processes of learning/teaching in which students are trained for new competencies necessary in a knowledge society.

**According to the international standard classification of education (ISCED, 1997) schooling is organized on three main levels:** primary, secondary and tertiary, which is consistent with the division of basic, secondary and higher education (pre-primary education or early childhood education or care did not become an obligatory part of education system in the majority of countries). Basic education usually lasts longer than primary education and incorporates primary education (first level of basic education) and so called lower secondary education (second level of basic education). The basic education is compulsory.

Division of education is based on a number of criteria, at that the most important criteria is complexity of the education content. Based on these criteria structure of school system, which allows international comparisons, is as follows:

- Pre-primary education (level 0),
- Primary education. First stage of basic education (level 1),
- Lower secondary education or second stage of basic education (level 2),
- Upper secondary education (level 3),
- Post-secondary non-tertiary education (level 4),
- First stage of tertiary education – not leading directly to an advanced research qualification (level 5),
- Second stage of tertiary education - leading to an advanced research qualification (level 6).

### **I. 2.1. Primary and single structure compulsory education**

Primary education characteristic that differentiate it from the lower secondary education, are lower complexity of syllabi and the fact that it is conducted in the classroom-teaching regime.

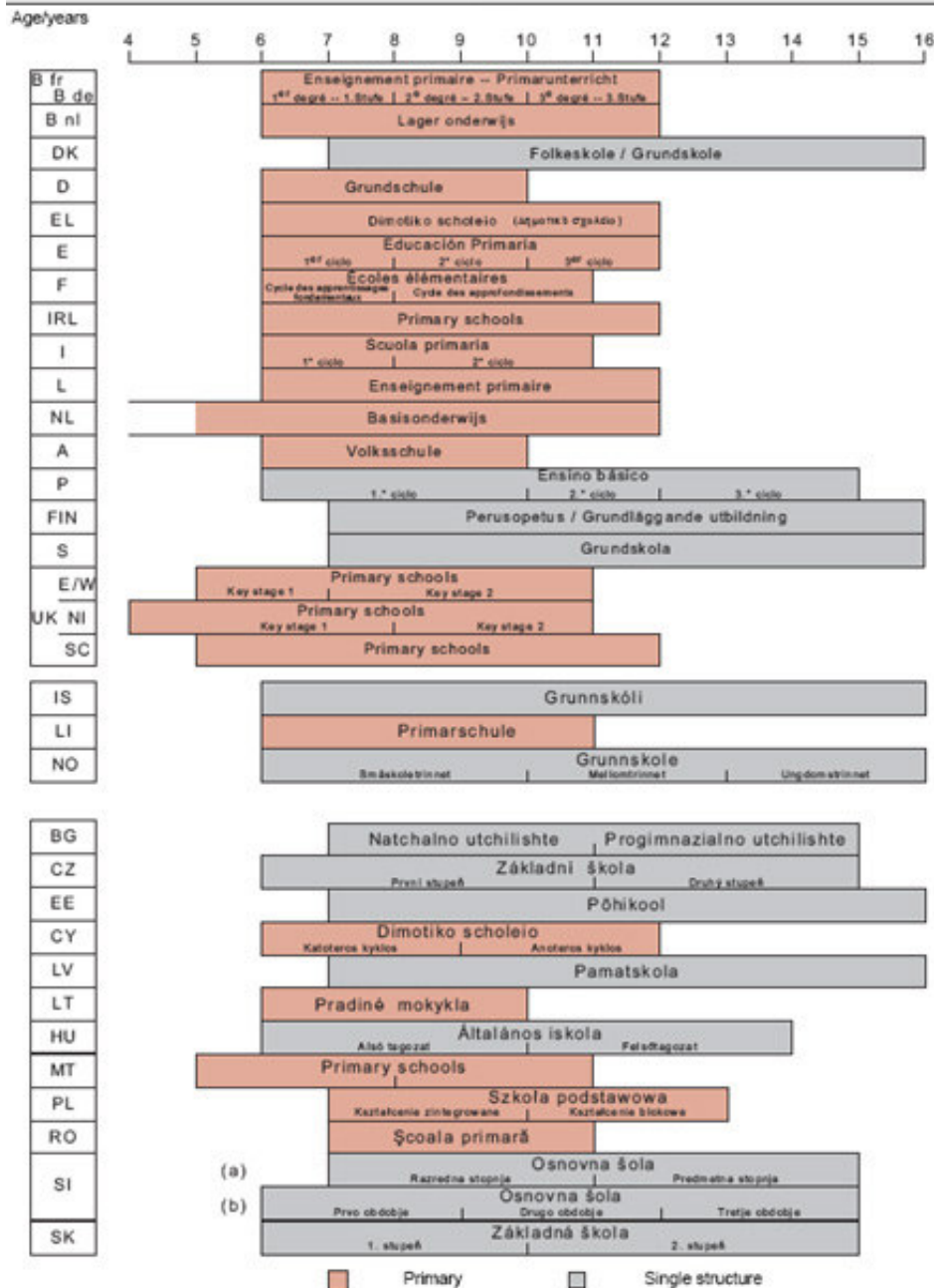
**Primary education commonly takes six years.** Exceptions are the countries in which it takes four years, such as: Austria, Germany, Lithuania and Romania.

In some countries primary education is split in the two levels (France, Italy, United Kingdom, Cyprus and Poland), in some countries there are three levels (French and German speaking communities in Belgium, and Spain).

**In 13 countries of European union and candidate countries, primary education and lower secondary education are single structure of compulsory education. It lasts 9 years and sometimes is split into several levels.** The characteristics of «unified» or single structured organisation (not dependent on possible internal differentiation on several levels) is non-existent external differentiation of programs and students, and dominancy of classroom teaching during the duration of a primary or single-structured compulsory schooling. That is why these systems are presented together with the systems of countries where primary education lasts six years or less.

This can be seen in Figure 1, where organization of primary, and/or single structure basic schooling is presented (according to: *Key Data on Education in Europe 2002*. European Commission, pp. D-1 and D-2).

FIGURE 1 : ORGANISATION OF COMPULSORY PRIMARY OR SINGLE STRUCTURE EDUCATION, 2000/01



It is significant that all countries that were candidates for membership in the EU, except for Lithuania and Romania, established six-year primary education and that the majority of them have no external evaluation during the basic compulsory education. Internal differentiation is conducted in 8 countries and external differentiation after the transfer from primary to lower secondary education is conducted in the four countries (Cyprus, Lithuania, Malta and Romania). It is understandable that for a rational guidance of educational policy it

is necessary to further explain extension of primary school and reforming the structure to unified (single structured) compulsory basic education.

### **I. 2.2. Why is it useful to extend primary education and classroom teaching**

As said previously, **basic education is divided into two levels**, first level or primary education and second level or lower secondary education. Main difference between two levels is complexity of the program and the way in which teaching is conducted (classroom or subject teaching). “Additional criteria” for differentiation are length of the program and qualification of the teachers (differences in content of teacher education and type of teacher training institution).

At the first level of basic education (primary education) there is a small number of school subjects and their content is placed in several educational areas. Due to the differences in students’ cognitive development at the first and second level of basic education depth of information processing is not the same. At the second level of basic education (lower secondary education or lower secondary school) content is more in depth. **Teaching at the first level of basic education is classroom teaching, and on the second level of basic education it is subject teaching.**

At the second level of basic education, the number of subject taught is doubled and the subject programs are mainly based on the scientific division of areas. Teaching is partially or in the whole subject based. Content presented is more in-depth and broader. Learning is characterized by deeper understanding of educational content and based on insights into casual relations between events.

**Classroom teaching is most commonly conducted by one teacher** (sometimes by teachers specialized for certain educational area), **subject teaching is conducted by teachers specialized for teaching of two or three school subjects** (term *teacher* is in the OECD countries used for each person that teaches in pre-primary, primary and secondary education).

**Profiles of classroom and subject teachers are different.** That is why teachers that are teaching on the first and second level are trained differently and have a different title. Teachers in primary education have a title of classroom teachers, while the teachers in the lower secondary education have a title of subject teachers (in Croatia they are also called subject teachers/professors).

**Where is the difference between educational profiles of classroom and subject teacher.** Simple explanation is that classroom teaching is to a larger extent “directed towards a student”, while the subject teaching is to a larger extent “directed towards a subject/programme”. **The younger students require teaching directed towards students, the older students teaching is directed on a subject** (exception to this rule is adult education, where the main focus is on the individual needs of the students). With the age, “internal conditions for learning” are changing, these are: abilities, interests, prior-knowledge and motivation for learning. The goals and content of learning is adjusted to these principles, and to the “external conditions for learning”, primarily organization and teaching methods. Naturally, both types of teaching should take into consideration subject and characteristics of students, which are the basis of a curricular theory.

In pre-school period “teaching” is in its entirety directed towards a child, while in the higher

education it is almost in its entirety directed towards a subject. In adulthood, due to the large differences in “internal conditions for learning” (prior-knowledge, experience and needs) teaching is directed towards a person that is learning. Curricular theory postulates interdependence between curricular elements; study goals, study content and evaluation of educational achievements.

**Due to the laws of psychophysical and social development (due to the of changes in “internal conditions for learning”) each life period requires different balance of curricular elements.**

**In pre-primary education** focus is on psychophysical development of children, so that education is focused on optimisation of their intellectual, social and physical development.

**From age 6 - 12**, which is a school period in which cognitive, emotional, social and physical development of students is the most extensive, and during which it is necessary to attain a significant amount of important knowledge, educational goals are not any longer developmental (functional) as is a case in pre-school period, and there is an increase in educational goals ratio. Teaching is equally students’ and subjects’ oriented. This is apparent in individualization of education, consisting of choice of educational approaches, which are applicable in content, but also in abilities, interests and emotional sensitivity of students.

**At the age of 12, the concrete-operational phase in intelligence development ends and formal-operational phase begins** during which the ability to operate the abstract symbols is developed and this allows for hypothetical thinking and abstract problem solving, and understanding of complex theoretical concepts. Cognitive development decreases compared to previous age period, individual differences become apparent and stabilized. This requires new methods of individualization for the system, based on “internal differentiation” of students which facilitates “subject oriented” teaching. Educational demands increase in this phase of basic education. Based on the listed circumstances, age of 12 is considered to be optimal for implementation of subject teaching. **Hence, currently dominant European model of six years of primary education conducted through classroom teaching.** The cognitive, emotional and social development is intense up to age of 16 (when IQ is finally stabilized). This developmental age is also sensitive and therefore teaching is not subject oriented but oriented to the developmental needs of the students. Due to these factors single-structured basic nine-year education (*single-structured education*) in Scandinavian countries lasts till the age of 16.

Modern school is turning away from teaching of factual knowledge to teaching certain key competencies which do not loose relevance, unlike information. **Current subject teaching is redirected from the teacher oriented teaching methods to student oriented teaching.** Teacher is not a presenter of content but facilitates students process of competencies building. The teacher’s role includes facilitation of developing (constructing) key competencies for successful conducting of main life roles. Hence, in subject teacher education pedagogical-psychological education is an important element.

### **I. 2.3. Differences in education of classroom and subject teachers**

**The stated differences between classroom and subject teaching are reflected on teacher education. Teachers should achieve two types of competencies, related to two components of education.** These are general and professional component. In Croatia these two components are called subject and “pedagogical-psychological” competency. Subject competency consists

of expertise in the area of teaching, while pedagogical-psychological competency makes the teacher able for successful “transfer” of knowledge, psychomotor skills, values, attitudes and habits and successful completion of other teachers’ school roles. Thus, effective teacher should not be just an expert in a certain knowledge field, but also a good educator. Insufficient competence in one area cannot be compensated with the increased competency in another.

**Classroom teachers and subject teachers differ by presence of certain components in their training.** Simplified explanation would be that classroom teachers should know less about larger number of subjects, while subject teacher should know more about lower number of subjects. Total amount of knowledge in teaching content is higher for subject teachers.

**Classroom teachers and subject teachers differ in their preparation in pedagogical-psychological component** in that a classroom teacher should know more about cognitive, emotional and social development of student and laws of learning, than a subject teacher. Classroom teaching occurs in an earlier life stage than the subject teaching. Till age 12, cognitive and emotional development of students is more dynamic than in the later period. Individual differences in abilities, interests and emotional reactivity are still not stabilised and they are under greater influence of environment than later in life. That is why preschool and classroom teachers should be specially educated in the area of developmental psychology, didactics and teaching methods for different subjects, so that not only teaching but the entire school socialization would be adjusted to individual developmental differences.

**The listed differences in tasks of classroom and subject teachers are visible in their training programs.** In curriculum of classroom teacher, the ratio of content that is related to subject and pedagogical-psychological elements of competency is 50:50. In the training program for subject teacher, the ratio of subject and pedagogical-psychological elements is approximately 80% to 20% (in Croatia this ratio has changed, so that there is an even larger portion of subject element although the portion of 20% of pedagogical-psychological and teaching methods contents is an European minimum).

#### **I. 2.4. Duration and new contents in European compulsory education**

General educational goal in the knowledge society is enhancement of quality of human capital, so that permanent employability is ensured, preparation for active citizenship, an advancement in societal homogeneity and decrease of social exclusion of individuals and groups. These educational goals are achieved by grasping certain number of key competencies needed to cope with demands that life in the knowledge society places in front of their members. There are several groups of competencies, such as different types of literacy (reading, mathematics and natural science), generic skills, metacognitive competencies, personal competencies and social competencies (*Key Competencies*, 2002).

**Considering the fact that key competencies are necessary for each citizen, they should be mastered during the compulsory education.** For successful mastering of key competencies it is necessary to have cooperative action of school, parents, social environment, and recognition of students informal learning outcomes.

**Minimum duration of compulsory education in the knowledge society depends on the extent and complexity of key competencies.** Considering the fact that life in united Europe in the conditions of globalisation is more complex than before, the extended duration is necessary for mastering of key competencies. Hence, compulsory education in EU countries takes from 9 to 12 years. **Not a single European country has compulsory education that is organized in 8**

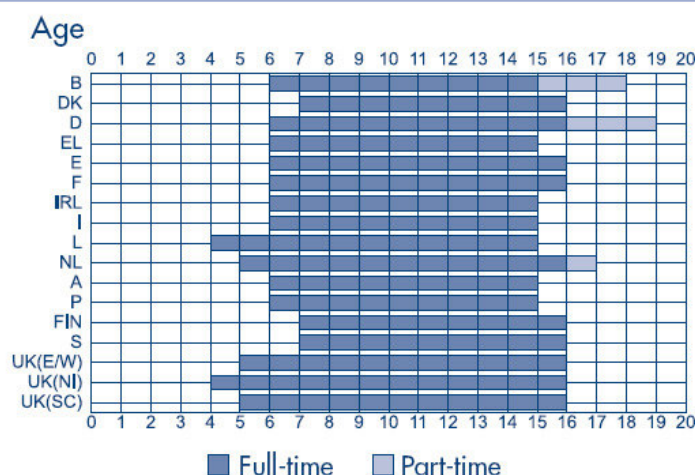


years.

Commonly, compulsory education starts at the age of 6, with the exception of countries in which pre-primary education is incorporated in the system of compulsory education. Most EU countries have primary education of 6 years and internal differentiation of programs and students during the lower secondary education (second level of basic education). With the exception of Austria, Germany and Luxemburg which have external differentiation after the 4<sup>th</sup> year of primary education. Scandinavian countries: Denmark, Finland, Sweden and Island have single structure compulsory education where differentiation is in a more sophisticated forms of individualization during the entire compulsory education.

Duration of compulsory education in EU countries shown in Figure 2 (Key Competencies. 2002. pp. 18).

FIGURE 2: THE LENGTH OF COMPULSORY EDUCATION IN EUROPE, 2001/2002



### I. 2.5. Secondary education

Secondary education is divided into lower and upper secondary education. Lower secondary education is included in compulsory education and is second level of basic education (ISCED, 1997). Most countries do not have division between lower secondary education and primary education, but have an “integrated” structure of lower secondary education where students are learning common general-education curriculum. Lower secondary education (ISCED 2) is in this case called “integrated”. In these countries compulsory education is organized as single continuous structure that lasts 9 or 10 years. Differentiation of programs starts in upper secondary education (ISCED, 3). Pre-tertiary education (primary + secondary education) lasts 12 or 13 years. **The twelve-year pre-tertiary education is predominant.**

In Germany, Austria, Malta and Netherlands differentiation of programs begins after primary education, this would be during lower secondary education. The extent of general education that students are receiving depends on the type of school.

It is possible to differentiate two main types of upper secondary education: general education, which leads towards tertiary (higher) education and vocational education, which prepares for

the job market, but also for continuation of education.

Summarized data on the length of primary, compulsory and pre-tertiary education and data on way of differentiation is presented in the Table 3.

Table 3: Structure of European pre-tertiary education

COUNTRY	Year of first grade entrance	Length of primary education	Length of compulsory education	Length of pre-tertiary education	External differentiation after primary education	Internal differentiation during the lower secondary school	External differentiation during the lower secondary school
Austria	6	4	9	13	X		
Belgium	6	6	9	12			X
Denmark	7	9/10		12		X	
England/UK	5	6	11	13		X	
Finland	7	9		13		X	
France	6	5	10	12		X	
Greece	6	6	9	12		X	
Ireland	6	6	9	12		X	
Italy	6	5	9	13		X	
Luxembourg	6	6	9	13			X
Netherlands	5	7	11	12			X
Germany	6	4	10	13	X		
Portugal	6	4+2	9	12			X
Spain	6	6	10	12		X	
Sweden	7	9		13		X	
Iceland	6	10		14		X	
Liechtenstein	6	5	9	12			X
Norway	6	10		13		X	
Cyprus	6	6	9	12		X	
Czech	6	9		13			X
Estonia	7	9		12		X	
Latvia	7	9		12		X	
Lithuania	6	4	10	12		X	
Hungary	6	4	12	12			X
Malta	5	6	11	13	X		
Poland	7	6	9	12		X	
Slovakia	6	4	9	12	X		
Slovenia	6	6	9	13		X	
Bulgaria	7	4	8	12			X
Romania	7	4	9	13		X	

Among the 12 countries that applied for the candidacy, just one country has eight years of compulsory education (Bulgaria) while all others have nine years or longer compulsory

**education, and none of them conducts the external differentiation after primary education.** These countries did not extend their compulsory education because of formal adjustment for systems European, but with the aim of improving preparation of their citizens for life in united Europe. This was necessary so that new key competencies could be efficiently achieved. This is a reason why the redesigned of curricula is and hence occurrence of ongoing curricular reforms in European countries. There is a significant difference between extending basic education in order to achieve new competences and extending compulsory education by incorporating parts of higher secondary education into it without changes in basic education.

**Nevertheless, it is crucial to examine ways in which key competencies are achieved.** Which are the disciplines and cross discipline contents and ways of teaching that most effectively lead towards mastering of transferable competencies that prepare a person for a life. It is a current belief that the most suitable approach is cognitive constructivist, which allows students to construct new cognitive structures, or competencies. Teachers, taking into consideration the previous students' experiences that is gained in diverse manners (in and out of school) are facilitating the construction of new structures by preparing the conditions for information processing by higher cognitive processes.

### **I. 3. QUALITY OF EDUCATION IN OECD COUNTRIES**

Educational systems are changing to improve the quality of students' achievements and increase the inclusion of population in pre-tertiary education. The researchers are interested in the quality of some of the key competencies of students and adult citizens in different countries, and factors that influence these competencies. This was a purpose of some international research. Between 1994 and 1999, a research was conducted on the representative samples of 20 countries that are members of OECD, to determine functional literacy of population 16 - 65 old (*International Adult Literacy Surveys – IALS*). The PISA literacy assessment on 15-year-old population is more extensive and recent. Therefore, it is more relevant for the compulsory education policy and we will use its results to answer the questions related to the quality of education in certain national systems and to determine factors of influence. PISA results suggest the quality of compulsory education in developed countries and factors that influence the quality, so that it offers elements for advanced European education policy.

After presenting the structure of educational systems in OECD countries, it is necessary to present differences in their effectiveness that is demonstrated by quality of students' knowledge. It is necessary to take into account both components of system effectiveness, improvement of which is a strategic goal of national education. These are:

- **achieving the higher average quality of students educational achievements,**
- **achieving less diverse achievements of students that differentiate by various socio-demographic characteristics (primarily according to family background).**

It is possible to determine the quality of the system by the results of specific countries in international testing of students achievements. Since 1997, OECD country member are determining comparable success indicators of the national educational systems. Based on success differences of certain national systems and identification for causes of these differences it is possible to formulate more successful national educational policies. The result of these efforts is the *OECD Programme of International Student Assessment, PISA*, which consists of research of educational achievements for fifteen-year-old students. During year 2000, the research was conducted in 32 countries and in 2002, 13 more countries was included in the

study (OECD, 2001a). The research repeats every three-year, and the focus of research is transforming from one type of literacy on another.

**PISA 2000 project, conducted the assessment of three types of literacy: reading, mathematics and science literacy** (in first testing from year 2000, the focus was on reading literacy). The ability of students to apply their knowledge and skills in the real life context was assessed and not just the level of students grasp of the content of school curriculum. The focus was on competencies that manifest in ability for conducting processes and understanding of concepts and their application in problem solving.

PISA report shows average national results and differences between them, and explains the national differences by students' characteristics and those characteristics of educational systems that are linked to differences in achievements. For the educational policy it is very important to perceive which characteristics of educational systems influence good, or poor student achievements. The results indicate not only large average differences between countries, but between schools and students in the same country as well. These differences help in explaining differences in success of certain national systems.

### I. 3.1. Rankings of the countries according to average literacy

**National differences in average literacy** can be seen from the rankings of countries according to reading, mathematics and science literacy as it is shown in Table 4 (according to *Knowledge and Skills for Life, 2001*. and *Literacy Skills for the World of Tomorrow, 2003*). The absolute differences are presented in the Figure 5.

Table 4: Rankings of the countries according to the reading, mathematic and science literacy

Reading literacy	Mathematic literacy	Science literacy
Finland	Japan	Korea
Canada	Korea	Japan
New Zealand	New Zealand	Finland
Australia	Finland	United Kingdom
Ireland	Australia	Canada
Korea	Canada	New Zealand
United Kingdom	Switzerland	Australia
Japan	United Kingdom	Austria
Sweden	Belgium	Ireland
Austria	France	Sweden
Belgium	Austria	Czech Republic
Island	Denmark	France
Norway	Island	Norway
France	Liechtenstein	United States of America

United States of America	Sweden	Hungary
Denmark	Ireland	Island
Switzerland	Norway	Belgium
Spain	Czech Republic	Switzerland
Czech Republic	United States of America	Spain
Italy	Germany	Germany
Germany	Hungary	Poland
Liechtenstein	Russia	Denmark
Hungary	Spain	Italy
Poland	Poland	Liechtenstein
Greece	Latvia	Greece
Portugal	Italy	Russia
Russia	Portugal	Latvia
Latvia	Greece	Portugal
Luxemburg	Luxemburg	Luxemburg
Mexico	Mexico	Mexico
Brazil	Brazil	Brazil

The absolute national differences can be seen in Figure 5, which show differences among educational achievement of students whose parents have diverse socio-economic status. Both types of differences should be compared, and this would be done after both of them are explained separately.

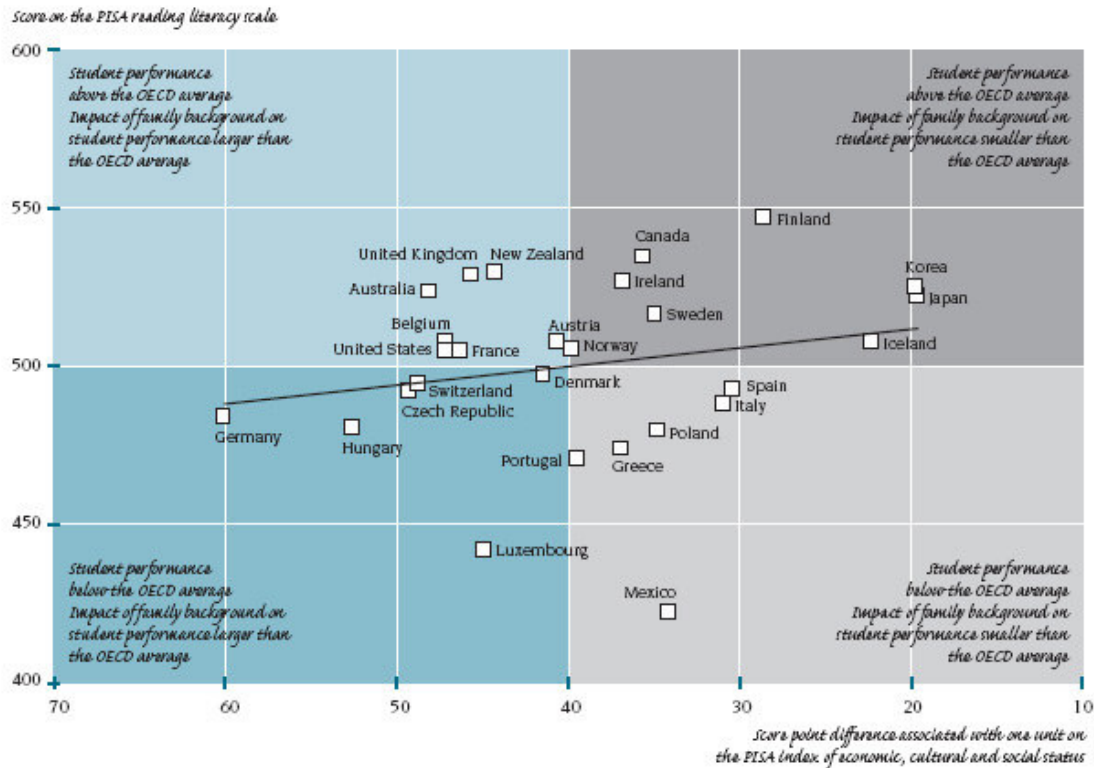
### **I. 3.2. Absolute national differences in literacy and differences in educational achievements within the countries**

**The goal of compulsory education is not only the higher average quality of students achievements, but a more balanced educational achievement of students groups around the national average.** In this way the human resources base for the entrance into higher education is larger, and student population is better prepared for a lifelong learning; **and therefore quality of a human capital on the national level is improved** (impact of a lifelong learning on a quality of a human capital is explained in the section I.1.3.). Decreasing the differences around the national average reduces the number and size of the risk groups of socially excluded, the social homogeneity is increased, more people are enabled for active citizenship and the adult population which are prepared for permanent employability are greater.

The average national achievements and differences in achievements of the group of students whose parents belong to diverse socio-economic groups are presented in Figure 5 (OECD, 2002. pp. 42).

**Figure 5: Performance in reading and the impact of family background, OECD countries, PISA 2000**

*Relationship between the average performance of OECD countries on the PISA reading literacy scale and the socio-economic distribution of student performance*



### I. 3.3. Diversity of factors that influence national differences

Different hypotheses on factors that influence these differences were tested with the intent to explain the differences between countries in average students achievements and differences in educational achievements for certain groups of students around the national average. These are: the hypotheses on impacts of monetary inputs (financial hypothesis), the hypothesis on impacts of family background, the hypothesis on families' material wealth and an immigrant hypothesis.

The quality of education is considered to be greatly influenced by educational investments; the correlation between educational expenditures per student and national average on the scale of reading literacy is calculated. **The correlation is 0.44, which explains 19% of variance in average success between countries** (OECD, 2002. pp. 40). These figures indicate that more than 80% of a variance depends on non-monetary factors. For example, Ireland and Korea, are countries with a high rankings and they spend half of the resources per students than Italy, which is significantly under the OECD average based on the educational achievements of their students. Nevertheless, the coefficient of determination of 19% is not trivial. It implies a relative importance of monetary inputs in the context of other factors.

In order to lead the educational policy that assures high average student achievements and their small differences between students who belong to different social groups, **it is necessary to determine the reasons why some students who belong to different societal groups are**

**successful and others are not.** Hence intervention that assure high achievements of the majority of student population could be implemented. The PISA assessment focused on identification of environmental factors, and not on the role of individual differences in cognitive characteristics that are known to be accountable for 50% of differences in school achievements of students in the basic school.

**The strongest environmental factor that influences educational achievements in the same system is home background;** defined as a parental vocation (OECD, 2001a).

**The activities which are related to consumption of a classical cultural goods (arts, music and theatre) is also closely related with the achievements on the test of a reading literacy.**

**The family material status** is less related to educational achievements than other indicators of family background.

**The other significant demographic variable is an immigrant family background,** which is related to school failure, commonly attributed to lower language competencies.

### **I. 3.4. Importance of equalizing influence of social environment**

The main PISA results that relate to the influence of social environment on students educational achievements imply that this impact is not equal in all countries. Countries differ not only according to average effectiveness of a system, but also by the capability to decrease differences in knowledge among students whose parents have diverse social status, while keeping the high national average. **The results suggest that quality and equality can go together and that they should not be considered competitive but complementary to the goals of educational policy.**

**The general trend, which is in the Figure displayed with the line that passes through all graph fields, demonstrates a negative correlation between average national achievements and extent of differences in achievements of students that are coming from different home backgrounds.** This implies that the higher average results are compatible with smaller differences in achievements of students of parents that belong to different status groups.

Canada, Ireland, Sweden, Finland, Korea, Japan and Island are countries with above average results in reading literacy and below average differences in achievement of students coming from wealthy and poor families. On the other side, Switzerland, Czech Republic, Germany, Hungary and Luxemburg are below OECD average according to the average students achievements and above average according to differences between students' achievements whose parents belong to diverse status groups.

It is useful to contrast Finland and Germany. Finland is superior according to average educational achievements and small differences in achievements between students that belong to wealthy or poor families. On the other side, German students have significantly lower average achievements than students from Finland, and the greatest differences in average achievements between students that belong to wealthy or poor families. German students whose parents work in the elite profession have average achievements when compared to finish scores, while German students whose parents work in the vocations that are least elite have the average results when compared to Mexican students.

Austria and Island are countries with equal average national results on the literacy scale (small

differences that are achieved in relation to average are not statistically significant). Their equal average results are not considered to be of an equal value. The result in Island is of the higher value, due to the fact that their equal average score is achieved with less group differences. Austrian success is of the lesser value, due to the fact that is achieved with significantly higher differences in achievements of Austrian students whose parents belong to the different societal status groups. The students whose parents have a low societal status, score low on the scale of literacy and have not only lower chances for educational and societal advancement, but they also contribute less to the national development.

**The lower differences between students' who belong to different societal groups achievements are desirable, because they assure the greater equality of quality of a human capital in the entire population, which is a better starting point for both the individual and a national development.**

### **I. 3.5. Explanation of differences in average literacy and differences in educational achievement of various groups**

The question that should be asked in what can be done to have a system and a school which will decrease the effects of differences caused by students' family background, and to keep a high national average achievement. This is important to know, because it is a predominant attitude that an increase in inclusive education (decrease in dropout rate of students and increase of the secondary education completion rate) endangers average quality of the students' achievements.

For educational policy, it is necessary to assure measures for improvement of national average in reading literacy and measures for decrease of impact that differences in family background have. It is important to recognize which factors influence average quality of literacy and on what depends the impact of a family background.

A partial explanation can be found in structural differences between Finnish and German system (both systems have an equal monetary investments per student). Additional explanation can be found in the reasons for German and Austrian lower scores on PISA testing compared to Finland and Island, both in the average literacy and between group differences.

**National differences in average reading literacy are related to the duration of general education.** Germany and Austria have a shorter general primary education than Finland and Island. Primary education in Germany and Austria takes 4 years, while compulsory education takes 10 or 9 years. Finland and Island have a system of single structure basic education that takes 9 or 10 years. Since there is no difference in the duration of compulsory education, but in the duration of the general education for the complete student population, it is evident that the longer general education for all students is related to the better average achievements in reading literacy of mentioned Scandinavian countries (the differences in average literacy between Germany and Austria are related to the significant differences in the expenditure per students in the favour of Austria).

**National differences in equality of educational achievements are related to the ways and time of differentiation of programs and students during basic, and compulsory education.** In Germany and Austria an explicit or external differentiation is conducted after four-year primary education. After the fourth years of schooling, students have an option to choose between three types of secondary schools (gymnasium, or some other vocational secondary school). The subject teaching is implemented immediately after primary education, in the fifth



grade. Later transfers between different types of schools are possible, but they are rare.

Finland and Island have a single structure compulsory general education school that all students attend. Individualization of teaching is conducted according to the abilities and interests of students, by means of elective courses and multilevel teaching of the same subjects. In the first six years of schooling there is a classroom teaching, and after that there is a combination of classroom and subject teaching. This means **that teaching in the schools in Finland and Island is to a greater extent student oriented, than is the case in German and Austrian schools.** That is why students in Finland do not repeat the grade.

Finish schools and teachers have a larger autonomy than their German colleagues. There are no differences in the equipment of rural and village schools in Finland, teachers are better educated (they complete their education with the Master degree), and the influence of a family status on the students' achievements is smaller than in the German schools.

### **I. 3.6. Flaws of an early external differentiation**

What is so negative in explicit external differentiation, when it is known that it is conducted according to the school achievements in the primary education? Furthermore, it is to be expected that the education should be more effective in the early-formed homogeneous classrooms, which are attended by students selected, according to their knowledge, abilities and motivation for learning.

There are a few issues raised with the early external differentiation. First setback is that intellectual abilities are still not stabilized at the age of 10, and educational preferences and motivation for learning are even less stable. Because of this reasons, **early tracking of students is related to high mistake in prognosis.** The supporters of an early differentiation believe that this is not a major problem considering the fact that it is possible change the educational tracks, and transfer from one track to another. This does occur however commonly in one direction; from more demanding (gymnasium) program towards the less demanding vocational programs. The opposite direction is not common and it is necessary to ask why. It is harder to from vocational towards the general education oriented program. This is harder due to the several reasons. The most important are differences in a program demands and quality of teaching, also there is negative impact of the "labelling effect".

**Transfer a certain vocational program in general education gymnasium program is harder** because general education program demands higher level of abilities in operating with abstract symbols.

Furthermore, **there is a difference in average pedagogical-psychological and teaching methods preparation of teachers of general education and vocational subjects, which influences the teaching quality.** Research shows that students who were included in less demanding educational tracks commonly believe that they receive less support from teachers (OECD, 2001a).

The **"labelling effect"** consist of the fact that the students which are according to their school achievements directed towards less demanding programs are considered to be less able (regardless of whether they really are less able or not) and they behave in the expected manner. That is the reason for them achieving poorer results than what they could achieve if their own and teacher expectations were higher.

The **main setback of early external differentiation is a high correlation between the type of chosen program in the lower level of secondary education and family status.** A type of school that students attend after they complete primary education in Germany or Austria is highly correlated to the parental societal background. In some German states, the probability that students whose parents are coming from the highest socio-economic group will attend a gymnasium is six times higher from the probability that students whose parents are coming from the lowest professional status would attend gymnasium (*Stanat et al. 2002.*).

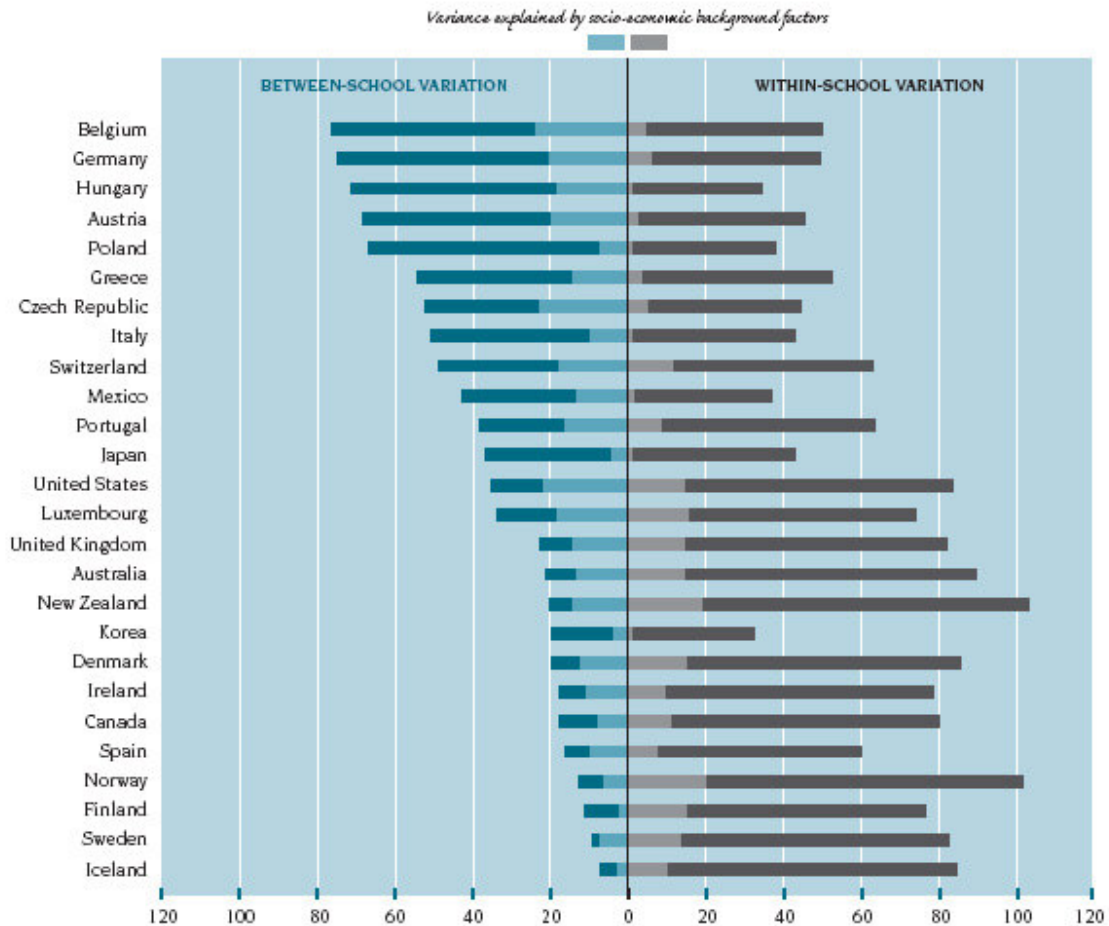
**Why is influence of family status on the choice of program undesirable?** The parental support in the students early age is more important than in the later age. That is why the differences in family recourses of parents that belong to different status groups, have higher influence on the achievement of students in the systems in which early explicit differentiation is conducted. In the systems with later explicit (external) differentiation which is commonly conducted after nine years of compulsory general education, the influence of family background is lower because students at the age 15/16 are more independent than at the age 10/11. Students who have good developmental potential, but their parents belong to lower status groups, do not have the same opportunity as students whose parents belong to the higher status group, to develop their potential if they are directed towards the less demanding program early. This is a waste for these students but also a waste for a society, since human resources are not optimally used.

### **I. 3.7. Assurance of equal standards**

Most countries do not have selective system as in Germany and Austria, but still there are significant differences in national average of literacy quality and size of differences between schools in the same country. Figure 6 shows the differences in reading literacy between schools and within schools in specific countries (OECD, 2002. pp. 49). How can noticed international differences that cannot be assigned to structural characteristics of educational system be explained?

Figure 6: Variations in reading literacy performance between and within schools, OECD countries, PISA 2000

Expressed as a percentage of the average variation in student performance in OECD countries



Note: The values are expressed as percentages of the average variation between OECD countries in student performance. For each country, a distinction is made between how much of this variation can be accounted for by the different results of each school (to the left of the central line) and how much is to do with a range of student results within each school (to the right of the central line). The length of each segment is relative to the total variation in all OECD countries, which is set at 100. A bar longer than 100 in a segment on the horizontal axis indicates that variation in student performance is greater in that country than in a typical OECD country. A value smaller than 100 indicates below-average variation in student performance. The shading on the bars in each segment at the middle part of the chart indicates the proportion of variation explained by socio-economic background factors. Owing to the sampling methods used in Japan, the between-school variation in Japan includes variation between classes within schools.

Figure presents visible national variation in the level in which reading literacy varies in a certain country. The length of the lines suggests the relative variability of literacy in the certain country related to the average variability in OECD countries. For each country it is determined the ratio of the total variation of students achievements that can be attributed to variation between schools and which part of total variation should be attributed to variation between same school. Variation in shaded parts of lines near the middle axis, displays significant differences in impact of family background on variation between schools and variation in achievements within schools.

37% of a total variability in students' achievements in OECD countries is influenced by between-school variation. Between-schools differences indicated primarily the unbalance in a quality of different schools in the same country, and significantly but in a lesser degree on impact of a family background (the variability that can be attributed to the family background is displayed with the shaded pare to the line near the central axis). Besides this directly visible influence of family background on the school achievement by the family socialization, there

is indirect but stronger multiplicative influence of family on the school, which increases the between-schools variation.

The most important conclusion, which can be made from this overview, is that countries with smaller between-schools variation have better rankings on the literacy scale. In each of the seven most successful countries on the scale of reading literacy (Finland, Canada, New Zealand, Australia, Ireland, Korea and United Kingdom) between-schools variation are accountable for a total variation in literacy just one fourth of the total variability in the OECD countries. These countries managed to achieve a high national average and small between-schools variations. As well as smaller between-school variations are related to the higher average results, the larger differences between schools are related to the lower national average in reading literacy. International correlation between national average and national proportion in OECD average variation in achievements that is attributed to schools is 0.46 (the determination coefficient is approximately 21%).

### **I. 3.8. The reasons why the decrease of between-school variation raises the national average**

Figure 6 shows that the significant part of between-school variation in the reading literacy is related to the differences in the socio-economic status of parents. This relation multiplies the influence of socio-economic average of students in the certain school on their individual achievements. Explanation of this influence is as follows.

The schools with higher average level of socio-economic status of parents of students that attend certain school, have some advantages. They have higher support of (influential) parents, the cooperation between parents and teachers is more intense, those schools have less discipline problems, better quality teachers, higher teachers ethics, and better relations between teachers and students and school climate oriented to high achievements. This is usually accompanied with the possibility for faster mastering of curriculum and more intensive interactions between students in the scope of competition and mutual help. These schools are considered to be elite. Reviewing the OECD countries as a whole **this contextual factors are three times more effective than the direct influence of socio-economic status of parents on achievements of their children.**

This effect is magnified in the selective systems with an early differentiation, which are accompanied with the differences in curriculum that unequally affects the reading literacy (general education curriculum contributes more than the vocational). Early differentiation of students is related to the differences in students' academic abilities, which directed in different educational paths, which increases between-schools variation in achievements (but decreases individual differences within-schools). Because there is a high correlation between choice of school in selective systems and socio-economic status of parents, students with good abilities that are coming from poorer families and did not manage to enter more demanding programs, cannot fulfil their full potentials, which is loss for both individual and a society.

**Even in the systems with single structure basic school, because of school inequalities inside the same system, a certain number of gifted students that are potentially most valuable human resources remain unexploited. That is why one of the educational policy priorities is a decrease in between-schools variation.**

**Identification of schools with lower achievement is achieved by objective measuring through external evaluation, so that the schools could be helped with appropriate intervention.** The help for schools consist of impact on quality and amount of input, these are monetary and non-monetary resources, and improvement of school transformation processes: organization and methods of teaching, curriculum development, teacher training, improvement of leadership and improvement of the school climate.

### **I. 3.9. Explanation for between-schools variation**

The differences in variability of achievements within schools are not possible to interpret in one way. The smaller differences can be caused by selectivity of schools, which assure the more equal quality of students at the time of entrance, than by successful of school in a support of students with lower abilities and motivation, or in general by inadequate conditions for learning in the school which do not permit the manifestation of individual differences in students potential.

The non-selective Scandinavian systems (Denmark, Norway, Finland, Sweden and Island) which are characterized by high pedagogical standards and individualized teaching (due to which they achieve high national averages), there are great variations in reading literacy within schools, with small between-schools variation. This testifies about the importance of individual differences in abilities and student motivation for learning. In these countries, the impact of family background is successfully decreased for the between-schools variation but not for within school variation. While the conditions for display of certain abilities are more favourable, the differences between more and less able individuals are higher. These differences are influenced by all factors of socialization, both school and family. The Scandinavian countries managed to equalize standards in their schools to the greatest degree and managed to help their students to actualise their potentials.

## **I. 4. ADDITIONAL MEASURES FOR QUALITY IMPROVEMENT**

PISA results direct towards several educational policy measures, which can improve the quality of students achievements. These are, except the improvement of general conditions for learning in different schools; improvement of reading inclusion of students, focus on system outputs (student achievements) instead on inputs and processes in system and allowing for more school autonomy (decentralization of education).

### **I. 4.1. Student involvement and reading achievements**

An important influential factor for students' educational achievements is motivation for learning, especially in the prospective of lifelong learning. The main indicator of students' motivation is their attitudes towards reading and reading habits. The correlation of 0.38 is determined between achievements on the reading literacy scale and index of reading inclusion, which gives the coefficient of determination of 15%. Reading scope is just partially linked with parental status and is also influenced by school itself. **This opens a particularly important possibility to have a school influence the decrease of differences in reading achievements of students that are coming from families of diverse socio-economic status.** Since the reading literacy is an important requirement for a lifelong learning, this allows

schools to influence a successful mastering of curriculum in the secondary and higher education, and to influence the successfulness in education of adults.

Reading inclusion is related to the school inclusion, or student satisfaction (quality of the school life). The data gathered by PISA assessment in 2000, shows that in almost every country the satisfaction is related to school achievement, which supports the assumption that it is hard to expect high achievements from students who are not positively engaged. It is interesting that the majority of the tested students (approximately 3/4) believe that the school is a place where they belong, and just 13% of students in OECD countries, does not feel good in the school environment.

Reading inclusion has an impact on the national literacy variation. Highly positioned countries on the literacy scale, such as Finland, Island, Japan and Korea achieved the highest indexes of a reading inclusion.

#### **I. 4.2. Orientation on student achievements and external evaluation**

PISA 2000 assessment demonstrates that students have higher achievements in schools with a predominant climate for high achievements, readiness to put an effort, discipline, satisfaction with learning and good relations between students and teachers.

On the international level, national achievements are related with the reorientation of educational policy that controls input and system processes (resources, organization, contents of learning and teaching methods) for a control of the learning results. This is connected to the methods of evaluation of a educational achievements.

To improve quality of their systems, most European countries changed their systems of evaluation based on the external and transparent evaluation methods. This transfer gives better results in the systems where schools have more freedom in determining their organization, contents and methods of teaching.

Almost all EU countries and half of the countries that applied for candidacy (these countries already became full members) conduct an external evaluation and publicize their school results. In some cases, at the end of secondary education, results of an external evaluation that are achieved are not made public. Even these results enable schools to find out about their placement on the school rankings and take some actions to improve students' achievements. These individual results of students can be used for enrolment in higher education.

#### **I. 4.3. School autonomy**

As it is previously mentioned, the benefit of external evaluation depends on the level of school autonomy. The autonomy consists in use of financial resources, organization of educational processes, choice of textbooks, choice of methods of teaching, and choice of employees (especially school principals) and their in-service training. Only in this case, teachers and students creativity is boundless, their potentials and responsibilities are increased. Correlation between school autonomy in some educational policy issues and average literacy on the international level are statistically significant and they are in the range from 0.51 to 0.16 (OECD PISA database, [www.pisa.oecd.org](http://www.pisa.oecd.org)).

The review of the data on school autonomy in European countries suggest the following (*Key Data on Education in Europe*, 2002. pp. B-15 and B-16):

The school autonomy is not the equal for all of the issues. In the issues of dealing with the financial resources, it is the lowest when deciding on school building, limited in issues of school equipment and great in deciding on current expenditures.

In human resource questions, there is a larger autonomy in teacher employment than in the choice of a school principal. The autonomy is higher in division of work tasks, than in determining the amount of tasks.

Schools are experiencing a high autonomy in choice of textbook, and the highest in the choice of teaching methods.

In countries with single structure basic education there are no differences in the level of autonomy between primary and lower secondary education. In the cases where there is no delineation between first and second level of basic education, the autonomy is higher on the second level.

There are certain national differences in the level of school autonomy. Flemish community in Belgium, Netherlands and United Kingdom have the highest autonomy. Germany, Greece and Luxemburg and some other candidate countries have the lowest autonomy.

In Belgium, Ireland, Finland and Liechtenstein, most of the decisions are made in schools with the agreement of governmental supervisors or based on the framework given from the government.

## **I. 5. EDUCATIONAL POLICY IN TRANSITIONAL COUNTRIES**

For successful transition it is extremely important to have a high quality of human capital. Which based on the educational structure and a present values and population habits, remains far behind developed countries. Due to the educational level of population is both cause and effect of economic development, **educational policy in transitional countries has more difficult tasks than OECD countries.** The transition requires good human capital quality, and educational structure in these countries is lower, the available financial resources for educational investments are limited and developmental (research) infrastructure in education is weaker. Some additional policy analysis are needed, planning, strategies, rational management of monetary resources what makes difficult formulation of an effective educational policy and its successful implementation (*The World Bank*, 2000).

Educational systems in transitional countries did satisfy the needs of pre-transitional non-market economy, so that in many of these countries many believe that they have good systems. Indicators received from OECD research of adult literacy (*Adult Literacy Survey – IALS*, OECD, 2000) suggest **lower adult literacy in transitional countries compared to literacy in OECD countries.** The literacy is operationally defined as a set of skills, which are necessary for reading comprehension, use of documents and ability to solve mathematical problems that are common at the work, at home and in the society.

It is determined that level of adult literacy in transitional country is in correlation with the level of completion of higher secondary education, and in a higher correlation with a quality

of education that is measured with the IALS scale. It is possible to conclude that the time spent in education is important (number of completed grades of secondary school), however quality of education is equally important. **Generally speaking, the current educational systems in transitional countries do not result with skills that are needed for work in a modern (market) economy.**

Another key result of the IALS research that has been conducted in OECD and transitional countries is that national results are better than socio-economical stats of families is less related to the literacy of an individual (what correspond to data gained through PISA testing). These are reasons why **national educational policy should reduce effect of family background**, what it means is that it is necessary to avoid early external differentiation of students (*early tracking*), since this is a mechanism that allows influence of family status on education of individuals.

**Changes in education of transitional countries are related to the developmental needs of a civil society.** Needs for a development of civil society are closely related to the economic development. Strong institutions of a civil society increase the trust between people and their trust in society institutions. This increases the society cohesion and decreases transaction expenditures. Insufficient trust is a significant problem in transitional countries. What has to be increased is a legal state, but it is also important to complementary socialise people by education. Education for human rights and for a democratic citizenship helps internalisation of democratic society common values. In this matter, the educational policy for minorities is particularly important.

### **I. 5.1. Strategic educational priorities**

Generally speaking, national educational priorities are coming from the developmental needs of a certain countries and that is why they are not equal to the highly developed OECD countries and transitional countries. Highly developed countries are focused on the raise of competitiveness of their knowledge based economies and advancement of democratic standards. Transition countries are focused on the problems of transition from the planed market economy, and transition from the authoritarian ways of administration to civil society, which has to be attained in the conditions of globalisation. Developmental problems in the area of education are diverse. **While the developed countries already conducted the structural changes in their systems and now they are focusing on improvement of the quality of education, the transitional countries at the same time conduct structural changes and are attempting to improve quality of their systems.**

Developed OECD countries, as well as transitional countries are trying to have students achieve key skills necessary for successful life in a learning society, and knowledge based society. These are:

- Knowledge of a large transfer value, which allows fast and easy adjustment to changes.
- Appropriately metacognitive skills, skills for self-directed learning higher order cognitive thinking skills.
- Experiences in an application of knowledge and skills in new circumstance.
- Values and attitudes of civil society, which are based on trust and cooperation.



Even though international studies are not sufficient for establishing optimal national education policies, it is possible to use them for the following suggestions (*World Bank*, 2000. pp. 34):

**Restructuring upper secondary education**, creating more attractive programs for secondary vocational education, with the aim to increase the percentage of students completing secondary education so that the economy receives better educated work force. It is possible to expect faster changes in the world of work so these programs should provide a good basis in intellectual skills gained through the general education part of the program.

**Facilitate transfer between secondary tracks, between secondary and higher education and between tertiary programs.** It is necessary to avoid early specialization. Main rule for education policy should be: a wide basic education with specialization postponed for higher levels of education and decrease in impact of family environment on choice of programs. This is achieved by facilitation of transfer between tracks and programs and by financial support to children coming from poor families.

**Establish low cost alternatives for preschool education**, to increase inclusion of preschool children in the organized early education. An early education has the largest developmental potential, and gives a base for a lifelong learning. Its increased availability decreases the influence of the family background on the educational advancement.

**Develop multi-sector strategies for improvement of educational approach and its quality in certain areas**, especially for the rural areas and some parts of population, such as national minorities.

**Improve the opportunities for adult education** (re-qualification) to facilitate the adjustment to changes at the job market and to permanently improve quality of national human capital. In addition to the system of permanent education it is necessary to establish and develop opportunities for later inclusion of adults into educational programs at different levels (“second chance” programs).

**Establish a system of objective entrance exams for the University level** to prevent possible corruption at the entrance into higher education. This should be achieved by external evaluation of educational achievements at the end of secondary education.

These educational policy goals are obtainable by appropriate structural changes in education, curricular reform, reform of teacher education, changes in educational management and sustainable financing.

These priorities force the governments of transitional countries to change their educational systems in the area of curriculum and its implementation (teaching), and in the perspective of lifelong learning for successful changes. It is necessary to have appropriately structured educational system, the good quality of non-monetary inputs into system, prepared and motivated teachers, system for a quality assurance which ensures good quality processes in the system, optimally decentralized and deregulated system of management, and appropriate developmental infrastructure of education.

Monetary inputs in the system are the prerequisite of the successful system, but to increase in funds does not correlate with the system effectiveness. International studies demonstrate that

there is not a close relation between the educational expenditures per students and results of learning. Furthermore, the budgeted limitations are permanent and it is not possible to expect spectacular increase in educational funds requested by employees in education, their associations and union organizations. Expenditures for education are followed by changes in gross national income, therefore countries with the low economic growth do not increase significantly their educational funds (*World Bank*, 2000. pp. 123). The solutions should be for in the new funding sources, different allocation of resources and more rational expenditures.

## **I. 6. RECOMMENDED CHANGES**

Although international studies can be very useful they are not sufficient for creating effective national educational policy. International studies report common problems in different countries and strategies that proved to be successful in dealing with certain problems. It is wise to follow the examples of good practice, but it is necessary to recognize what conditions are necessary for its successful outcome. The goal of feasibility studies is to single out necessary conditions in order to changes to be effective.

This project in its first year determined the solutions that were implement in countries with efficient educational systems and were used in transitional countries that entered EU. The solutions should not be selected so as to imitate successful countries but should be selected based on the insight on what influences them to be successful. In the second research year it is necessary to specify the conditions (resources) that need to be provided for a successful application of the solutions that have a higher developmental potential. This supplemental elaboration would allow the choice of the implementation modalities.

In short proposed changes are as follows:

- Extend primary education from four to six years (classroom teaching would last six years instead of current four).
- Extend basic compulsory education from eight to nine years, because of increased demands of new key competencies in a knowledge society. With optimisation of the school network it is possible to assure capacities for the ninth grade of a basic school.
- It is also necessary to provide tenth year of compulsory education for the students that are not planning to continue higher secondary education in less complex vocations, which is needed on a job market.
- Improve the ways of conducting internal differentiation of students during second level of basic education (ISCED 2) by use of elective subjects and multilevel (two-level) teaching.
- Changes of compulsory basic education are possible without changes in basic school organizational structure. Single structure basic school allows more flexible internal differentiation based on the elective programs and multilevel (at least two-level) delivery of programs.
- Facilitate easier transfer between tracks in upper secondary school (ISCED 3).
- Gradually implement external evaluation at the end of compulsory and not only the secondary education.
- Prepare conditions for education of adults (re-qualification, in-service training and additional education) to changes in the job market and permanent improvement of the quality of national human capital. Education of adults at the short periods of time is the most effective in improvement of the international competitiveness of the national economy.

- Optimisation of allocation of available monetary resources to adequately respond to the budget limitations (this part of the feasibility study started later, so the creation of alternative solution is still in a process). It is necessary to answer the question of the principal criteria (measure) of allocation: students (voucher system), schools, municipalities/towns or region, or some combination of these criteria.

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