

# Economic Model of Network Integration in General Education

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**Abstract** — The current paper shows the non-market tendency of the service of general education on its federal, regional and municipal levels. The paper determines the leading economic factor of organizational integration as the financing of educational costs per person with regional or municipal budget. Subject-object relation in terms of general education is examined from the position of network integration. The paper strives to emphasize the specific character of actives, resources and competences, used in the educational process and outlines the frequency of subscription for educational programs as one of the principal characteristics of general education. We mean the characteristics offered by O. Williamson to classify types of transactions. The author insists that the educational system's examination must also consider its budget efficiency as a crucial factor. The current paper lists the economic premises of federal standard implement using the both, basic general and special private, pedagogical methods. The paper develops the economic model of providing the population with the service of general education with the use of network interaction. This model is based on the contract classification formulated by O.E. Williamson. To evaluate the efficiency of the management in scale of general education, the author tends to examine the criteria of specific actives and existence of guarantees and their availability.

**Keywords**—*general education service, network interaction, specific and non-specific actives, generally-pedagogical and private-pedagogical methods, financial normative per person.*

## I. INTRODUCTION

As far as we know, general education is a somme of various governmental, municipal and private organizations. The mentioned components provide implementation of primary, general and secondary education. We also consider here extra-education of children and teenagers. The process of providing the customer with the service obliges the provider to deliver all the knowledge and information to the student, according to the particular educational program he applied for. In Russian Federation children and teenagers (students) possess a right to make a choice among the full-time, part-time, family or self-education, evening classes, external studies or some combinations of all the types mentioned above.

The success and failures in the sphere of general education can be explained with some modern economic scientific approaches: school of intellectual capital [1,2,3,4,etc]; approach based on the knowledge [5,6,7,8,etc]; network and evolutionary economy [9]. Let us remind you that the theories,

mentioned above, were developed due to the papers by B. Vernelfelt [10] and R. Rumelt [11].

Basing on J. Schumpeter and E. Penrose's ideas on managing skills and competence [12, 13] and their followers C. Prahalad and G. Hamel who created, at first, the concept of core corporate competences [14] and then the concept of dynamic opportunities [15]. Finally, the service of general education can be subdivided into three parts:

- Creative process of accumulation and convey of the knowledge (from professor to student; from professor to professor) matching a particular educational program, commonly using informative and communicative technologies.
- Goal-oriented process of crossing of unique methodological and psycho-pedagogical knowledge of the staff (e.g. students with special educational demands or asocial behavior; methods of handling multi-cultural groups, etc.) at an educational organization.
- Information search and coordination of combinations of recourses (material and immaterial) inside and outside the educational organization basing on organizational administrative knowledge on educational activity.

All three components, mentioned above, exist not only in organizational forms functioning due to the centralized governing, including integrated, but also be implemented due to the interaction of integrated members in form of self-managing groups. Integration as an union and coordination of different parts integrated in the organic whole seems to be especially interesting for the scientists and practitioners into the context of attracting deficit recourses.

## II. THE RELEVANCE, SCIENTIFIC VALUE.

The sense of the integration in the market, trade, chain of the value's creation, according to J. Kommons [16], is in the putting in order its initiator and partners' economic co-operations, contributing to the soothing of conflicts and getting mutual benefits. Another important factor of integration, according to J. Kommons, is the private character of interactions' regulation, the last is possible only in situation of mutual agreement of the members considering their proper interests and possibilities. According to some analytics, there is a tendency to the decrease of integration's deepness, meaning the level of concentration of the function of decision-

making at a company which governs the integrated organizations. It means that the demand for network structures inside organizations and in open markets will increase [17, p.213].

The principal cause of the integration of educational organizations is the accumulation of contradictions between external environment and limited possibilities to satisfy market demands in the most rational way. The competition determines which of the general educational organizations (schools) will be looking for its proper benefits during the co-operative process and also "tough" or "mild" forms of integration. In the Russian Federation competition develops among governmental and municipal schools. Their part in total amount has always counted more than 98% and the number of the students' never been less than 99%.

As for the general education, the founders commonly use "tough" form of integration according to the levels of implemented educational programs: "preschool-general", "general-high", "general-professional-high". It's implemented in the local administrative territory mainly as a merger. Such process leads to the absorption of one or a few educational organizations, one by one, and is characterized with structural changes of the system of internal (corporate) control.

The network is a "mild" form of organizational integration which is specified with the safeness of internal (corporate) structure of each organization-participant. According to O. Williamson's argumentation [18] and other followers of scientific idea formulated by R. Coase [19], the networks are consciously created by the subject of the chain of the customer's value-creating that disposes the most important actives. The initiator involves in network interaction the most perspective business partners aiming at the adaptation to the market with the operative coordination of the resources and competences. The partners shouldn't be aimed only at costs' accumulation which is connected to the particular network's participant, but also at the general market increase. The potential's changing is connected to the increase of customers' costs of the products of labor offered in the market.

As network's creation initiator there can be schools implementing the following models of economic relations: "marketing model of education oriented on the non-regulated market" (payed educational services), "marketing model of education oriented on the governmental market" (budget financing according to the number of students). Governmental schools with "non-marketing model of education" can be the participants of network interaction.

### III. PROBLEM STATEMENT

Analyzing economic dilemmas, which also involve network model of general education, physical characteristics should also be taken into consideration. Let us remind you that, traditionally, from the point of view of economic theory, educational services are characterized with the consideration of dichotomy of "private" and "public goods". As far as we know, this subdivision in the consume of goods is determined by two basic characteristics: the property of uniqueness and property of deducting. Public benefits can not be unique and deductible as such benefits are always private. It's highly important to realize that the low level of deduction creates the problem of underinvestment of the services in the principal

programs of general education. The investment to the maintenance and increase of the educational quality will always be on the suboptimal level, because its benefits will be used by those possessing an access to the educational service, but not "investors" themselves.

The problem mentioned above doesn't exist into the context of private benefits, services implemented according to the programs of additional education. In general, total amount of the school financing is determined by the gap between the number of newcomers and graduated students over a year. In Russia there has been established a special practice of normative financing on all educational levels. Calculating educational subvention on the regional level we use the minimum normative of the budget financing of costs. It's a guaranteed financial rate of the governmental and municipal order's execution. Its level increases from the bottom to up (elementary, secondary, general) and depends on the kind of educational programs (common, correctional, gymnasium). Municipal level is marked with possible distinguishes in the normative rate connected to the actual number of students in the classes. As far as we know, there are some students who easily assimilate educational programs (general and extra), in other words "brilliant". However there are also those experiencing particular difficulties in assimilation of the program material, so to say "mediocre". The educational directions for the "brilliant" and "mediocre", most probably, will be different.

As it's shown due to the international experience, in particular, in Great Britain, the implementing of the normative financing leads to the migration of well-to-do families from the locations with mediocre educational services to the territories with higher quality of schools. As a result, there occurs a sudden territories' diversification according to the access to the education of high quality. This leads to the "educational ghettos" with the high concentration of students from poor families, so to say from risk groups. Their insufficient studying results, evidently, don't contribute to the shift for the highest level of general education system [20]. According to the official data, analogical processes are being observed in Russia [21]. There's been revealed a segment of schools (from 4% to 25%, depending on the particular administrative territory), with the high concentration of the students from risk-groups. Such schools are special in the level of actual students' involvement in the educational process.

As for the students from risk-groups, the organization of the general education should also stay pedagogically active. However without improvement of psychological, physical and cultural states of the students it's impossible to achieve any positive results. The reason is clear: the costs for the accomplishment of the specific actives in different spheres of living of the children and teenagers from the risk groups aren't compensated by the budget. The mission of such actives in the organization of the general education is to make a positive impact on the risk-group students' lifestyle, because the last determines their system of the meaningful relationships (motives and aims) which highly influences also the educational sphere. Let us remind you that in scientific literature the "risk" is determined as an unpredictable result and possible unfavorable consequences. As for the general

education the harm made to the customer, his family and the whole society is mainly of social character. Taking this fact into consideration, we will introduce a special abbreviation SGSR (students from the groups of social risks).

#### IV. THEORETICAL PART

Taking into consideration all mentioned above, we offer to persuade the specific of actives (resources and competences) used in the educational process and the frequency of subscribing for educational programs as one of the principal characteristics of general education. Shortly speaking, these are the characteristics offered by O. Williamson for the classification of transactions. According to him, specific actives represent the result of specialized investment and can not be used in alternative ways, considering alternative goals, with no lost in their productive potential [18]. So non-specific actives can be reorientated with no extra-investment. The frequency reflects the regularity of activity's reproduction in the unit of time. The more regular are the contractual relationships, the more possible is the occurrence of the special managing structure for their implement. For rare or disposable contractual relationships such possibility strives to zero.

As for the general education, here non-specific actives play the role in the implementing of the generally-pedagogical technology oriented on the ordinary educational programs. When specific actives are used in the private-pedagogical technology implemented in correctional and gymnasium educational programs. This technology is marked with the low reproductive level and limitations of its spread. The both methods contain processing, quantitative and calculative components, but the generally-pedagogical one is specified with stable results and absence of conditional mood ("if the teacher is talented"; "if the students are brilliant"; "if the parents are nice"; etc.). The table 1 shows the system of general education from the point of satisfaction of its budget efficiency.

TABLE I. THE SYSTEM OF THE SERVICES OF GENERAL EDUCATION

Criteria of System		Frequency of the Enrollment for Educational Programs	
		<i>seldom</i>	<i>regularly</i>
Actives Used during the Services' Provision	non-specific	Disposable Educational Process with the Use of Generally-Pedagogical Technology	Repeated Educational Process with the Use of Generally-Pedagogical Technology
	specific	Disposable Educational Process with the Use of Private-Pedagogical Technology	Repeated Educational Process with the Use of Private-Pedagogical Technology

Source: compiled by the authors.

The disposable educational process with the use of generally-pedagogical method is characterized with low frequency of enrollment for educational programs. Repeated from year to year educational process with the use of generally-pedagogical technology is different from the disposable with the high frequency of the enrollment for the ordinary educational programs and the impossibility to

increase its effectivity due to the implementation of correctional and gymnasium educational programs without extra-financing. The disposable educational process with the use of private-pedagogical technology is characterized with the low frequency of enrollment for educational programs. Contrarily, the repeated educational process with the use of private-pedagogical technology is characterized with the high frequency of the enrollment for correctional and gymnasium educational programs and the impossibility to increase its effectiveness due to the implementation of the ordinary educational programs without extra-financing.

Connected to the unpredictable result of the providing SGSR with the service of the general education, which minimum is determined by the Federal Government General Education Standard, there, evidently, occurs economic background for the network interaction. Its successful implementation doesn't depend only on factors of production of the service, but mainly on the complex of the relationship designed around every student; not only possessing of educational recourse, but also data on the SGSR living and maximization of the connected effects. The fig. 1 shows economic model based on the contracts' classification formulated by O.E. Williamson [18, p.689].

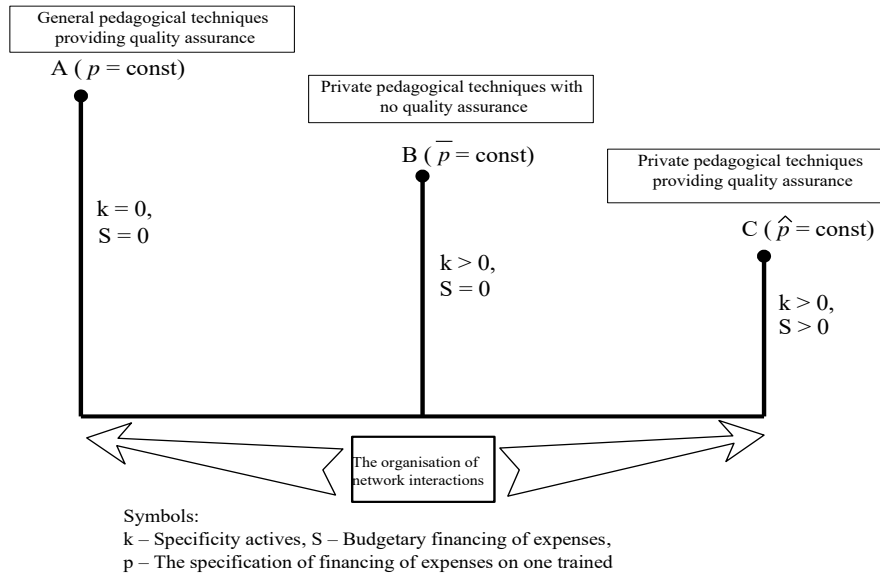
The criteria of specific actives and availability of guarantees can be applied to determine the efficiency of the managing of services of the general education. In the picture "k" means specific actives; "S" is the availability of budget financing of the costs; "p" is the normative of financing per person. When  $k = 0$  the implementing of the governmental order is provided with generally-pedagogical technology, when  $k > 0$ , we use private pedagogical technology.  $S = 0$  means that the budget financing of the costs will lead to the guaranteed studying result, in accordance with FGES, however if  $S > 0$ , budget financing of costs doesn't provide any guarantees.

According to the option A, the educational service is delivered with the use of generally-pedagogical technology in the accordance with the fixed normative of the financing per person. According to the option B, the delivery of the educational service is mediated with the investment in specific actives with no guarantees on the quality of education. The expected normative of the financing per person will be  $\hat{P}$ . Finally, according to the option C, the process of the service's delivery also demands investment in specific actives and if the budget provides the financing of the costs, the normative of the financing per person is  $\hat{P}$  will be lower than  $\bar{P}$ . The experience shows that educational organizations most commonly tend to the option A with the use of generally-pedagogical technology. However educational trajectory if SGSR, as a rule, leads to the low quality of studying results, which is mentioned in the previous paragraph of the current paper. As an exception there is also option C which offers the guarantees, such as studying at separated classes for the children with health limitations or the arrangement of the educational process of the students being on the long-term treatment at home.

Let us notice that the educational process in the point B is unstable. It's instability, firstly, depends on the outflow of students and, secondly, on the transmission to profile

governmental structures, including educational and training organizations, and, thirdly, on the principal refuse to study anywhere else. In general among the students of Russian schools applied in 2005 for the programs of primary education 93% achieved the level of general education. 58% were applied for the programs of secondary education and 52% finished them successfully in 2016. This means that 48% of

the children entered the first form eleven years ago quit the sphere of the general education before the fixed date. Rather conditionally the minimum rate of the expected normative of financing in point B can be on the level fixed according to the programs of professional education and the maintenance of children and teenagers at the profile governmental structures.



Source: adapted by the authors on [18].

Fig. 1 - Economic Model of Providing with the Service of the General Education on the base of network interaction

So in the point B it's economically-expedient to make a choice in the favor of the network's creation when a long-term relationship contract with an unfixed expire date is in the base of co-operation [22]. In the process of the general education services' delivery to SGSR generally-pedagogical technologies should be complemented with the private-pedagogical technologies. Transactional costs must be considered as an important factor of the school's stability in the local market of the services of the general education. The costs slowly increase or decrease when pedagogical technologies are complemented with the network interaction to the external environment. Such environment in Russia is represented by social and medical services, law enforcement authorities, social orphanhood prevention organizations, business structures, social organizations and private persons. Their resources are important as it can be necessary to correct the SGSR prejudice on the duty to get education in order to achieve in the future socially-important results.

#### V. PRACTICAL VALUE

As far as we know, in the Great Britain and the USA the schools marked with the special legal status have achieved the great success providing the combination of environmental resources (material and immaterial). They function even in the circumstances of the deficit of government financing and always search for the ways to be economically effective [23,24].

In the Great Britain these are the profile schools that work in accordance to their proper plans of development of one of the officially fixed specializations (technique, languages, sport, art) and attract private financing additionally to the governmental. Special initiatives aimed at the extra-training for the students with low studying results are extremely actual for them. So pedagogical technologies are supported with the specialists in the sphere of career guidance. As for the creation of network interaction around SGSR the experience of the Great Britain is represented in the papers by K. McLaughlin. Especially for SGSR he invented a developing model which includes four components [25]: 1) element of welfare (decision-making and problem-solving assistance to the students); 2) program element (the students learn the methods to solve their problems); 3) control or society (the students observe the rules of the school society); 4) co-ordination of forces (at each school there is a coordinator who monitors the implementation of the first three elements).

In the USA these are the Magnet schools offering educational programs of various specializations and possessing the rule to enroll the students from every school district where they work. Also Charter schools are chosen from the school districts according to the initiative of interested persons. The number of Charter schools is much bigger. Their charter is different from what poses ordinary schools. As for the achievement of particular educational results, charter schools are more favorable to enroll non-prepared and poor students. The assistance to the pedagogues

is made by school-counsellor, school-psychologist, school social worker, career-counsellor, child protection coordinator. The maintenance of the status of a Charter school depends on the results of students' testing and the analysis of their charter activity.

The results of the research of status schools in the Great Britain and USA and also Russian innovative educational network "Eureka" have revealed the following functions of the network interaction [26]: analytical (analyzes of the data on the environment); managing (managing of the network's activity and its participants co operation); informative (creation of informative streams inside the network); control-diagnostic (monitoring of the results); prognostic (creation of the strategy of development). During the working process they tend to reproduce successful innovations without using of formal ineffective mechanisms. Let us emphasize that the practice of creation of the complex of recourses basing on the network is not very wide-spread in Russia, neither abroad.

The background of Russian education is explained by the scientists from the positions of the theory of organizational ecology, theory of balance of organizations, theory of natural development of organizations, theory of sudden transformations and other directions of organizational theory. As for the examined object, we do not concentrate only on the character of its interaction during the implementing of educational programs, but mainly on its activity in external environment (professional, managing, innovative, financial, etc.). The proposals are limited to the improvement of the mechanism of governmental managing and support of the educational service's suppliers; the maintenance of different levels of centralization/decentralization of events and tools of program and project management.

We consider that the refuse to copy the experience of the network form of organizational interaction should be explained basing on the theory of innovation. The principal ideas about the modeling of economic interaction in the local level were developed in the end of XX century [27, 28, 29, etc]. The implementing of interaction depends on the following factors:

1. Competition and territory factor of the spread of the elements of general education. The competition stimulates the assimilation of innovations which change technique potential of the school. In the sphere of general education the competition is weak because of the government which is the principal customer and consumer of the social service. Searching for the benefits from the implementing of innovations educational organizations enroll into integrated links, including networks. According to Russian and foreign experience, the process occurs in the territories where the schools are located. There they are provided with basic normative, social, economic and other conditions of enforcement of educational programs.

2. The multiplicity of the levels of interaction implemented by schools with their administrative channels limited with the principal educational program. On the municipal level there dominates a tiny copy of the model of governmental managing of the general education. It is characterized with the priority of the budget financing, control of achievements prescribed with educational standards. This determines the school founder's choice in favor for the

traditional or even "strict" form of organizational integration. Private (informal) character of interaction's managing is especially significant for the network form of integration in the local territory, when it implements directly, in accordance to all the members, considering proper resources.-

When network interaction is initiated by Russian schools instead of the government and municipal authorities, their principal goal is formulated as the connection of the participants interested in each other and able to provide the student with the freedom of choice of the educational direction, preparing to continue studying and professional activity in the future. The links can be arranged in four following options:

1. Resource center. The integration of the resources of a few schools occurs around one school which is more provided with the sources. Basing on the center, it's possible to implement that part of optional contentment of the program (profile disciplines and elective courses) which is very difficult to provide independently. Other schools of the network convey students and education time fond to the central member of the network.

2. Educational consortium. The integration of resources of a few equal members provides the assimilation of the profile discipline and elective course at one or a few schools aiming at the continuing of education at special professional organizations (music, sport, art, military, etc.).

3. Educational partnership. School's co-operation with other structures possessing various educational resources and successfully complementing school's resources (part-time schools, distant courses, professional educational organizations, etc.). The processing of such center of distribution goes according to the model of "education through individual studying plan".

4. Regional center. Regional centers' function is based on the Charter and the License for educational activity. Regional centers encourage the leading teachers of local educational facilities, professors and scientist of local educational institutions and practicing specialists to participate in educational programs on regional level. During scholar year and vocational time they are holding lectures and master-classes, competitions and Olympiads, creative spots and other motivating groupings for the sake of early detection, development and professional support of outstanding children showing higher aptitudes and capable of distinguishing themselves in art, sports, science subjects, or creative technical achievements.

The analyze of program-methodical implementing of the disciplines and courses for the network form of education shows that for the members the most essential is the development of the unique approach to the profile education at schools considering the demands of final governmental attestation (Unified State Exam) on the disciplines. In practice it means that the "brilliant" students have more chances to compile their proper educational direction in the future maximumly basing on the opportunities of the network members. Unfortunately, we shall not look for the personal interest from the part of SGSR who are not enough active even in the conditions of the ordinary mass education, well-organized at schools. Commonly, they finish their studying on the levels of pre-profile education, possessing the diploma of

the general education, at the best case scenario, so where the problem of the managing of network education demands the solution. In the modern scientific literature there are represented only some examples of network interaction considering the resources and relationships which arranged as a system "home - school - society" for the part of SGSR from poor families. We suppose that, considering SGSR, there are actual the interactions on the following levels: 1) institutional as co-ordination of the efforts on the federal, regional (subject of the RF) and municipal levels; 2) specific as part or total independence of the schools; 3) external links of the family, school and its social partners with the investment into the infrastructure of collecting and convey of knowledge.

## VI. CONCLUSION

We consider the net to be modeled as an organizational system of closed type. In its frames we plan to achieve the standard (replicable) results of the general educational programs, which implementing can be periodically repeated despite of the change of resources' condition caused by any external influence. The existence of the net starts with self-organization (–organized informality") of participants which continues with the following processes of satisfaction of actualized external demands when an external resource is being used for its realization.

The networking implement demands every participant to reveal the key-competences and share crucial parts of the general cost with other partners. It seems to be used to further the favorable opportunities in the current market. The evaluation includes no more than two criteria: the distance and the dynamic of relations [30, p.59]. However, at first, such superficial effortlessness shades the deeply-complicated selection of a viable model of co-operation as a tool of maximization of costs of innovation with the control of the following expenses. And at second, facing any economical instability, its important to posses a technology which demands an easy access to the factors of cost's creation mentioned above. It is based on the best practices and network participants' functions to fix the general cost with the reduction of separate costs of all co-operating partners.

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