




Strategic Branches of Economic and Managerial Training of Principals in Ukraine using Business-simulations

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Keywords: Entrepreneurship Education, Business-Simulation, Business Tournament, Business School.

Abstract: The main topic of this articles focused on ways of introducing and using of modern simulation into education of youth 14-19 ages in schools, colleges, institutes and universities of post-socialistic countries (for example Ukraine). Actuality of this theme is determined by need of increasing of economic literacy, activity and responsibility of Ukraine's society for really realization of economic reforms. All persons, especially our youth age 14-19, must have new instruments and skills for reaction and self-realization in new dynamic and quickly changing world. Authors discovered experience, problems and innovative decisions of practical realized state experiment project "Development business education in Ukraine as part of entrepreneurial state policy", which had started from six secondary's schools in Kropyvnytskyi (Central Ukraine). Project team used business-simulation ViAL+ for experiment and modernization of entrepreneurial education. Because, this instrument is adopted for Ukrainian conditions, laws and economic culture, traditions. This project became part of the developing of entrepreneurial skills of pupils, which is one of the priorities of the concept of the New Ukrainian School. Also, this experience became a case of providing of entrepreneurial education at the other Ukrainian regions. The main parts of experiment are courses for secondary school "Business Education" for 7-10 classes, summer schools of Business Leadership, local and All-Ukrainian business-tournaments. Also authors described experience of using simulation for youth 16-19 ages in colleges and universities. In articles also are revealed main problems and ways of solving.


1 INTRODUCTION


In modern conditions of transformation in Ukraine there was a need to reform the management of schools. The adoption of the Law of Ukraine "On Education" in 2017 launched mechanisms for structural reform of the management system and methods of carrying out the activities of schools. The Law stipulates that "the state guarantees the academic, organizational, financial and personnel autonomy of schools. The scope of autonomy of schools is determined by the Law, special laws and constituent documents of the school" (Verkhovna Rada of Ukraine, 2017). We need special trainings programs for semi-directors and directors of schools, colleges and universities. Also there are introduced business instru-


ments into everyday and strategic activity of educational organisations. During the trainings we conducted research in the format of a survey on three questions: 1) who is the client; 2) which is a product of the educational institution; 3) which is a raw material. And also we identified the main areas of training of principals of school using business-simulation.

At the article we described:

- peculiarity of new conditions for economic and managerial training of principals;
- mental and professional features of perception of business education;
- modern instruments of forming of economic and managerial competencies during training of principals of schools.

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2 NEW CONDITIONS FOR ECONOMIC AND MANAGERIAL TRAINING OF PRINCIPALS

Based on this, schools of all levels become full-fledged business entities with different forms of ownership and in different statuses (budgetary institution, non-profit school, profitable school). And the main type of their activity is educational (Verkhovna Rada of Ukraine, 2017). In this regard, the introduction of economic and management approaches in the activities of schools becomes extremely important.

A sharp change in the role of the head of the school, the need to make a wide range of management decisions make not only to the established pedagogical norms of the school, but also to the traditional tools of business management. Given that the educational and business spheres of operation are quite distant and little intersect, one of the tasks of economists and scientists-educators is to approximate, adapt and implement economic tools of management and analysis in the daily activities of the school.

It is worth recalling the basic legislative changes that operate in the light of the current Law of Ukraine "On Education" in accordance with the levels of education Analyzing the legislative changes in the Laws of Ukraine "On Professional Higher Education" (Verkhovna Rada of Ukraine, 2019, 1998), "On Complete General Secondary Education" (Verkhovna Rada of Ukraine, 2020) it is worth noting the following innovations:

- independence in certain forms of education, forms of organization of the educational process;
- the right to form and approve one's own staff list, respectively, free employment and dismissal of pedagogical, scientific-pedagogical and other employees;
- independence in financial, economic and other activities in accordance with the legislation and constituent documents;
- free disposal of own revenues;
- the head of the school directly manages the activities of his institution, he is a representative in external relations with state bodies, local governments, legal entities and individuals;
- the head decides the financial and economic activities of the school, forms its structure, forms and approves the staff list in accordance with the law, is the manager of property and funds, ensures compliance with staff and financial discipline;

- the head ensures the development and is responsible for the implementation of the approved development strategy of the school;
- the head is responsible for the results of the institution of professional higher education before the founder (founders) or his authorized body (persons) (Verkhovna Rada of Ukraine, 2019, 2020).

A balancing role in the system of strategic management of an school is played by the pedagogical council of the school:

- determination of strategy and perspective directions of development of school;
- considers the draft constituent document of the school, as well as proposals for amendments to it;
- considers the draft estimate (financial plan) of the institution and the annual financial report of the school, and other significant strategic steps (Verkhovna Rada of Ukraine, 2020).

Analyzing such changes in the adopted profile laws, which correspond to the Law of Ukraine "On Education", we can predict that in the new version of the law on vocational (technical) education in terms of powers of the institution, its head and collegial body will be written similar provisions. These steps lead to one thing – the need for radical change in the training and retraining of managers in the education system.

The offered article considers ways and ways of economic, administrative preparation of heads of schools and their deputies in the conditions of reforming of education.

3 MENTAL AND PROFESSIONAL FEATURES OF PERCEPTION OF BUSINESS EDUCATION

In Ukraine during 2016-2021, research and experimental work of the all-Ukrainian level on the topic: "Development of business education in Ukraine as an element of state policy to promote entrepreneurship", approved by the Order of the Ministry of Education and Science of Ukraine No. 1221 from 07.10.2016, was proposed and conducted a training course for directors and semi-directors of preschool, secondary, vocational and higher education on the topic: "Implementation of economic approaches in the management of schools". During 2017–2019, 1225 training participants from all regions of Ukraine were covered (table 1). We chose the regions based on the openness of the regions themselves, readiness for change and training of their principals.

Table 1: Statistics of participants of trainings.

Region	2016-2017	2018-2019
Vinnitsa	0	41
Donetsk	0	36
Zakarpattia	120	60
Kyiv	72	383
Kirovohrad	15	66
Luhansk	0	41
Lviv	50	138
Sumy	0	45
Ternopil	28	50
Kherson	3	0
Cherkasy	0	4
Chernivtsi	30	37
Total	80	238

During the training, participants were interviewed on the following similar issues:

- Is the school an economic entity?
- Who is the client (s) of the school?
- What are the products (services) of an school (main and secondary)?
- What is the "raw material" of an school? What other resources are needed?

The results of the survey show a number of trends in education:

- for more than 50%, directors were agreed that schools are part of economic systems;
- for 87% of participants the pupil / student is the raw material of the schools;
- the products of the school are graduates, competencies, certificates / diplomas;
- clients of the school are parents, the state, universities, sometimes businesses, public organizations;
- for some directors there is a rejection of the introduction of the principles of classical management in the management of schools and the need to understand economic issues.

These answers reflect the gap in the perception of the customer, product, input resources between schools and representatives of private business, in particular training and education centers, which clearly understand these positions. There are objective and subjective reasons for this situation.

Objective reasons:

- the legacy of the industrial economy – all had to be adjusted to the production system. Who did not fit or ruled, or "fell out" of the system of economic relations;
- absolutization of the state in the socialist system;

- low human value in the USSR.

Subjective reasons:

- unwillingness to change quickly and understand all the laws of a market economy;
- lack of tools for adaptation from systemic, public administration to autonomy and self-government;
- legislative "leapfrog" with changes and the possibility of rolling back reforms;
- non-acceptance of each other's educational and business community, different "languages", principles and approaches to solving issues.

These reasons are significant obstacles to the training of heads of schools in economic and managerial approaches. And in order to train managers and effectively retrain it is necessary to take into account the peculiarities of the implementation of the economic style of management of the organization.

The first economic management should be a system that covers all levels of operation: customers (pupils / students), teachers / lecturers, deputy principals and principals (figure 1).

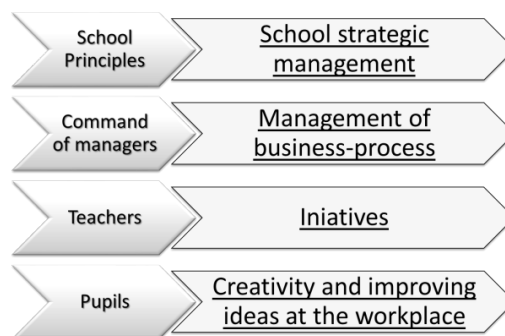


Figure 1: Development of entrepreneurial in education.

At each level it is necessary to implement the approaches and methods. For leaders, it is recommended, first of all, to look at the entrusted school not from the point of view of a teacher, organizer, pedagogical manager, but from the point of view of an economic non-profit organization. Such an organization has many business processes, and which should function as efficiently as possible and use the allocated public funds from the state and / or local budgets.

This will help to develop economic thinking, which is based on a simple but vital position: any result should always be greater than the spent material, financial, informational, time resources. If such equality is not ensured, then such a solution should be revoked or implemented so as to reduce the cost of limited resources.

At the level of deputies, the range of responsibilities is radically expanding. Today it is not enough

to be responsible and manage only educational activities. It is necessary to move to a full range of management in various areas:

- marketing of the school (information, image policy, admission campaign);
- financial (ensuring such a state that funds are always enough for all costs in full and at the right time);
- HR-management (to form an initiative and self-supporting team, which prevents moments of emotional burnout and recession).

Only in this case can we talk about the introduction of real autonomy and full management of the entire educational system.

However, building an effective internal governance mechanism is not yet possible guarantees the successful operation of the school as a whole. After all, any school significantly depends on the external environment and the influence of all stakeholder groups. The main such groups are other schools of different levels (both relevant and related), clients (students, parents), business as sponsors and as future employers for educational services, with the founders and authorities in the field of education.

Heads of schools take care of external communication. Because strong interaction and balance of educational programs must be built between different levels of education, so as to ensure a progressive and continuous learning process. After all, youth who enters the formal education system at 2 years and leaves it at 19-25 years, must clearly understand where and how to move in adult life, must be able to earn their skills, knowledge, be professional and acquire basic competencies (competencies in understanding of business).

This approach means that there can be no “gaps” in approaches, forms of learning at the intersection of educational levels. For example: the last year of kindergarten corresponds to the 1st grade of school, 9th grade – with the 1st year of college. Graduation from the 11th grade of the school opens opportunities for study in the first year of universities and high colleges.

Today, as in previous years, there is a big discrepancy between the last classes of school and the first months of study in university. Lecturers spend significant resources on adapting first-course students instead of effectively teaching them specialized disciplines and developing professional skills.

A similar situation arises between the 9th grade and the 1st year of VET. With the difference that the vocational education system often works to restore the student’s motivation and try to direct him to adult life — because he did not fit into the “classical

schemes” of schooling.

In interaction with the market of educational services, two key issues should be in focus. First, understanding what exactly the applicant for educational services, his parents, wants. Secondly, a clear answer to what exactly the community should allocate funds from the public budget intended to finance the school.

Regarding the first, the content of educational programs cannot be the same from year to year. On the contrary, it should be flexible, relevant to today’s demands of young people. And the teachers themselves must also be modern, in demand in their subjects.

Regarding the second position, the value of educational services for the client, community (urban, rural, district, regional or national), an explanation of why budget funds are spent and what areas of training they should be allocated to benefit from it should be constantly confirmed communities.

It is worth working with business as equal partners. Elevation in the status of the head of a school opens opportunities for greater maneuverability in interaction with business, as both parties are free to make their decisions in search of mutually beneficial proposals. For business, first of all, schools are interesting from the point of view of the employer and the ability to quickly find employees. This is an interaction in the dimension of the labor market. And, if the school can fully satisfy the requests for training, the support from the business is provided.

If not, the dialogue will not take place. It will be easier and even cheaper for a business to train a specialist than to retrain someone. The possibility of such an alternative should be constantly considered by the head of the school.

Another source of interaction with business is the provision of mediation services in the search for employees (the provision of employment services in the context of the labor market). Education organizations have practically ready and motivated employees. And there is an opportunity to test and find the right employee.

As for the state, it is essential to ensure “transparent” rules of the game (regulatory system), which will determine the working mechanisms for all participants in the educational process and stakeholders. Therefore, there is a need for internal and external security. This is especially important for Ukraine.

This understanding of the prerequisites for building the internal and external economic environment of the school contributes to the successful learning and further restructuring of the school on the basis of organizational, financial, personnel, academic autonomy.

4 MODERN INSTRUMENTS OF FORMING OF ECONOMIC AND MANAGERIAL COMPETENCIES DURING TRAINING OF PRINCIPALS OF SCHOOLS

Economic and managerial (managerial) training of heads of schools pursues the main goal – to teach / improve the ability to generate ideas and implement them independently in the practice of autonomous and self-sufficient management of schools. And such training should take place not only by standard tools (lectures, seminars, trainings), but also by innovative methods with the involvement of game and simulation technologies. Because rapid, effective retraining of economic principles of managers, formed in a rigid hierarchy of public administration, is possible only by radical methods that directly affect thinking, behavior and form applied skills.

Among such technologies of innovative, fast and radical practical training of managers are:

- games;
- simulators;
- gamification;
- virtual reality.

Each technology is suitable for use in certain conditions in the presence / absence of technical support. Comparative characteristics of each of the technologies are:

- Games – need scenario, need rules, participants and trainers, less interest after 3-5 rounds of playing, we remember that it is only game (Tokarieva et al., 2019). Minimum technical support.
- Simulations – learning by doing, need computer classes, not necessarily of trainers/moderators, reproduction of conditions of the real environment / object / process. Normal technical support.
- Gamification – using of game practices and mechanisms in a non-game context in real life, technical, organizational and high-level need of resources, involvement of natural human instincts: competition, achievements, status, self-expression, altruism, problem solving, formation of skills in the process of training and real life or in a specially created environment (Fedorenko et al., 2021). Need medium technical support.
- Virtual Reality – full immersion in a specially created environment, need special IT support and equipment, the participant virtually “lives” in

such an environment, difficult exit from the environment. Must very high technical support.

When comparing different methods, the most appropriate to use are games and simulators, which are relatively easy to obtain, organize and conduct with minimal or sufficient (available to most users) technical conditions. As for gamification and virtual reality, today these tools are either not yet perfect, or are valuable in organization and use. And the use of such technologies requires considerable time and inclusion, which, as a matter of fact, does not have the heads of schools.

The use of game technologies, in particular, business games, in professional development of managers is sufficiently described in the pedagogical literature. But the issue of using simulators, in particular business simulators, is not covered enough, and is often unusual and new for the pedagogical management community (Antoniuk et al., 2021).

Simulation technologies are interactive systems that reproduce the conditions of a particular environment, object, process using mathematical models. Examples of simulators are flight simulators, automobiles, locomotives, meteorological, physical, etc. Economics and business often use business simulators, which are interactive models of the real business environment in the form of a computer program that reproduces a structural unit of the company, an entire firm, industry or the economy of the whole country (Banshchikov and Pazdrii, 2017).

The history of creation and use of simulators is more than 50 years and has its roots in the military sphere. The leaders are Great Britain, the United States, Japan, Germany, and Scandinavian countries. In some countries, simulators are used at all levels of education – from preschool to adult education. Because this technology allows you to acquire practical skills and abilities.

A business simulation is a computer program, a large-scale interactive simulation system that is specifically designed to provide participants with economic and managerial competencies and skills. The main simulators are to create opportunities for the acquisition of practical skills in managing the economic processes of the entire technological chain of production, marketing and competition in the market environment, as well as the management of the enterprise as a whole. Today in the world there are hundreds of professional simulators with varying degrees of immersion and elaboration of processes. Ukraine also has its own products that are actively used in educational activities (figure 2).

The effectiveness of gaining practical skills while participating in interactive business simulators is en-



Figure 2: Well-known business simulations in the world and Ukraine.

sured by the application of the method of learning by doing (learning by doing), which gives the participant the opportunity to:

- not only observe the processes of functions of the enterprise, but also to make specific economic and managerial decisions that have real and adequate consequences for further activities;
- to acquire and improve theoretical knowledge of economics and management, to understand the causal links in the management of economic processes;
- simulators try to realistically reproduce the processes of functioning of the production enterprise, starting with the organization of production and ending with the sale of manufactured goods in conditions where there are different types of market – from duopoly to monopolistic competition.

After registration in the system, the participant receives an enterprise in an environment close to reality and has the opportunity to make economic and managerial decisions necessary for the start of its work and further development. The participant is given the opportunity to use existing financial instruments in Ukraine, to determine the range of products planned for production, to master it in production, to expand and modernize the production technological base, to hire and organize the work of personnel. Using appropriate marketing tools, the participant has the opportunity to start promoting and selling products.

In addition, it should be emphasized that the company is in a market environment, and when making decisions it is necessary to take into account the presence of other market participants. Thus, competition in the virtual market space forces the participant not only to look for effective tools and ways to promote the product, but also to make changes in the production process in order to change the consumer qualities of products and optimize its cost (Pazdrii et al., 2019).

For teachers and management of schools, participation in business simulators is quite difficult, as it is

necessary to master economic terminology, methods and approaches to decision-making in a market environment, analysis of decisions and results.

During 2015-2020, 120 trainings were held and as part of the annual business tournament “Company Strategy” a league of mentors was opened using the ViAL+ business simulator. About 600 leaders, deputies, teachers became participants. During this ViAL+ business simulation, the participant goes through several stages:

- 1) there is an adaptation to the simulation environment (5-6 periods);
- 2) a comprehensive vision of the company is formed as a system, which, at the same time, consists of interconnected functional units (10–12 periods);
- 3) the understanding of causal relations of management of economic processes of the enterprise in the competitive market environment (18–20 periods) is formed;
- 4) after that – conscious implementation and adjustment of the previously formed action plan, professional analysis of the results (after the 20th period);
- 5) consolidation of acquired competencies and practical skills occurs after 25 periods.

The usefulness and need for such trainings was noted, but there is also a significant entry threshold. In this regard, it is worth noting the necessary prerequisites for the use of business simulators in the re-training of managers and training of future managers:

- clear arrangement of tasks and setting to go beyond traditional learning and existing patterns;
- preparation of participants for economic terminology, logic of management decisions in market conditions;
- updating of digital skills of training participants;
- assistance with the first decisions, a full explanation of the consequences of decisions and what to look for;
- constantly explain the relationship between business processes and processes in schools in the light of the implemented reform of the education sector.

During 2018–2020, 230 managers, deputy heads of secondary, vocational, higher education institutions or their structural subdivisions were trained using simulators. For 67% there was a significant and quite significant increase in ownership of economic and managerial competencies.

5 CONCLUSIONS

Complex and systematic use of various innovative pedagogical technologies in the process of professional development of vocational school leaders makes it possible to rationally use teaching time, motivate students to self-development and self-improvement, while increasing the level of psychological, methodological, didactic and managerial competence.

The technology of professional development of heads of vocational schools has its own specifics, structure, stages. It is an effective tool for achieving professional self-improvement, acme peaks, competencies on a spiritual-axiological basis, initiation of rethinking, self-overcoming, self-determination, self-realization of a specialist, creative transformation of all professional activities based on conscious self-development.

The study does not cover all aspects of the problem. The subject of further scientific research may be the study of foreign experience of professional self-improvement of heads of vocational schools; development of effective pedagogical technologies aimed at improving personal and professional qualities, in particular through a set of psychological and pedagogical trainings and self-trainings.

To further improve the training, it is necessary to create a specialized simulation of schools in terms of economic and organizational autonomy. This project envisages the creation of an existing simulation, which will model the activities of the school and the competitive economic environment, the creation of a simulation by all participants. Such a simulation will be designed to prepare principals, deputy principals, teachers-methodologists to work in the new conditions of the school, in which funds will be allocated not to a particular school, but to students in the form of certificates. This will force schools to fight for the attraction of more able students, and, accordingly, will open space for competition between schools and create conditions for improving the quality of educational services for students.

Thus, modern changes in legislation and the reform of schools are forcing the search for innovative ways of training, education and retraining of managers in educational activities. Such tools include game and simulation technologies. Today, you should use leading business simulators. However, in the future we will hope for the implementation of a specialized simulation of schools.

REFERENCES

- Antoniuk, D. S., Vakaliuk, T. A., Ievdokymov, V. V., Morozov, A. V., and Kontsedailo, V. V. (2021). Integrating business simulations software into learning environment of technical university. *Journal of Physics: Conference Series*, 1946(1):012018.
- Banshchikov, P. and Pazdrii, V. (2017). Simulation technology in entrepreneurship education of ukraine. In *Enterprise strategy: business context: coll. of materials of International scientific-practical Conf., Oct. 16-17. 2017*, pages 260–262. <http://ir.kneu.edu.ua/handle/2010/23772>.
- Fedorenko, E. G., Kaidan, N. V., Velychko, V. Y., and Soloviev, V. N. (2021). Gamification when studying logical operators on the Minecraft EDU platform. *CEUR Workshop Proceedings*, 2898:107–118.
- Pazdrii, V., Banschikov, P., Kosyk, V., Tropina, I., and Hryshchenko, O. (2019). Simulation system in educational and career guidance state policy of ukraine. *CEUR Workshop Proceedings*, 2393:935–943.
- Tokarieva, A., Volkova, N., Harkusha, I., and Soloviev, V. (2019). Educational digital games: Models and implementation. *CEUR Workshop Proceedings*, 2433:74–89.
- Verkhovna Rada of Ukraine (1998). Pro profesiynu (profesiyno-tekhnichnu) osvitu (On professional (vocational) education). <https://zakon.rada.gov.ua/laws/show/103/98-%D0%B2%D1%80/print>.
- Verkhovna Rada of Ukraine (2017). Zakon Ukrayiny “Pro osvitu” (Law of Ukraine On education). <http://zakon3.rada.gov.ua/laws/show/2145-19>.
- Verkhovna Rada of Ukraine (2019). Zakon Ukrayiny “Pro fakhovu peredvyshchu osvitu” (Law of Ukraine On professional higher education). <https://zakon.rada.gov.ua/laws/show/2745-19/print>.
- Verkhovna Rada of Ukraine (2020). Zakon Ukrayiny “Pro povnu zahalnu serednyu osvitu” (Law of Ukraine On complete general secondary education). <https://zakon.rada.gov.ua/laws/show/463-20>.