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**TRAINING IN BUSINESS DESIGN AUTOMATION REACHING  
THE LEVEL OF DIGITAL SOCIETY NEEDS**

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***Abstract***

The concept of training specialists in the field of vocational pedagogy is changing with the advent of the digital economy. The digital society needs vocational education teachers who are ready to create pedagogical conditions for training future specialists in the field of economics and management. These skills are impossible without familiarity with the principles of business design automation. Taking into account that the use of automated information systems (corporate information systems) in the field of enterprise management becomes a rule, and the presence in such developments of the economic circuit (including the simulation module) is a necessity, there is a question of interaction between the quality of training of future teachers and such systems (in order to transfer practical experience). In the article the authors consider the aspects of preparation for work with applications connected with business plans. At the analytical level the problem statement that includes search activity in the field of economy is considered. At the pedagogical level – pedagogical conditions of realization of high-quality preparation for work with business plans are considered. The approaches allowing to realize the concept of such training are defined, references to similar researches are given and analogies in the basic search methods are carried out.

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**Keywords:** Business planning, pedagogical conditions, digital society, teacher of professional training, quasi-professional activity, information technologies in business.



## 1. Introduction

The concept of training in the field of professional pedagogy with the advent of information technology has shifted towards total informatization. Pedagogical and professional competence of the teacher of vocational training becomes one of a number of components on which the concept of education of the persons who are ready to work in the conditions of development of digital economy can be based. The tasks of the teacher of vocational training include the preparation and creation of pedagogical conditions for the personality development of the future employee in the field of economics and management. Thus, it is necessary to provide such training of teachers of vocational training, in the result of which the idea of how to create pedagogical conditions for the development of the specialist's personality in the digital economy will be formed. Chapaev (2014) notes that for the vocational education system it is important to create conditions for the integration of production and science. Interpolating this idea in the field of economics and management, we get the idea of combining practical activities in the field of economics and its scientific studies with automation, implemented through the use of information technology (IT).

## 2. Problem Statement

We study the process of training of future vocational training teachers in the area of training 44.03.04 " Vocational training (by industry)" for such educational programs as "Economics and Management" and "Service". It is important that students in these specializations understand the principles of business design automation on the level of needs of the digital society. The authors (Sokolova, Sergeeva, & Samokhin, 2018) emphasize the close connection of economic training with new information technologies. For teachers of vocational training, meeting the needs of the digital society is represented in the possession of skills of using information technology and the ability to didactic communications in IT and economics. Features of training of teachers of vocational training and ways of training assessment were previously considered by the authors (Neupokoeva, Chapaev, Chubarkova, Tolstova, Fedulova, & Tokar, 2017).

To gain systemic skills in creating business projects, it is necessary to use not only new information technology, but also a new format of preparation for work with these technologies. A quasi-professional project activity can be considered as one of these formats, during this activity the trainee can get an in-depth understanding of business planning using appropriate application software products. For example, the authors (Zyrianova, Dorozhkin, Zaitseva, Korotayev, & Shcherbin, 2018) raise the issue of directions of development and principles of training of vocational training teachers, emphasize the importance of introducing elements of meta-activity into the educational process, which confirms our hypothesis. Automated preparation of a business plan was chosen as a quasi-professional activity.

Also today, logic of development of practical skills that are the basis for the future labor functions of vocational training teachers raises many questions. It influences the content of the discipline. The authors (Dorozhkin, Kalimullin, Migacheva, & Sokolova, 2018), for example, analyze the content of the educational material from the point of view of the competence approach, and then consider the content

and sequence of educational modules taking into account the phased development of labor functions. Therefore, one of the tasks we set is to consider the content aspect of the discipline.

### **3. Research Questions**

Since the Russian State Vocational Pedagogical University trains teachers of vocational education for the secondary vocational education system, an important element of such training is sectoral and pedagogical training. Therefore, from the point of view of industry training, we must give students the skills to build economic models. And in the framework of pedagogical training, we must give students the skills to build a model of pedagogical conditions of training, which correlates with the system requirements for teachers of vocational training Chapaev (2014). This task is becoming increasingly important in the framework of the development of the digital economy, when teachers are entrusted with the mission to be the conductors and the introducers of the new economic ideology. Not without reason, within the framework of the scientific school of G. M. Romantsev, more often it is said about the strategy of modernization of training of teachers of vocational education (Dorozhkin, Zeer, & Shcherbina, 2017).

One of the stages of preparation for life in the era of the formation of a digital society should be the ability to work with large amount of information, the ability to analyze and systematize, that is, in fact, to develop information competence. However, for the Economics and Management and Service education programs, it is important to develop economic competencies that are especially in demand for executives (Tkacheva, Dorozhkin, Scherbina, & Korotaev, 2017). The development of special competences for teachers of vocational training is a serious stage of training (Fedulova, Fedulova, Kirillova, Vagina, & Kuznetsov, 2017).

Studies in Canada's higher education system Walder (2017), for example, establish that the computerization of the educational process itself is not perceived as an innovation by students, but when new forms and methods of teaching appear in the educational process, then students perceive it as an innovation.

Currently, there is sufficient information for the implementation of any business plan in the global network, so it is important that students choose the types of business absolutely arbitrarily, but taking into account the interaction of businesses within the group of students.

The digital economy is characterized by a high level of computerization, the need to have skills of working with large amount of information and information exchange skills. So in the process of quasi-professional project activities for students the task is not only to implement their project locally but also to learn how to promote it for a large enterprise and to present it to investors and other stakeholders.

Therefore, for the training of teachers of vocational training the following mandatory pedagogical conditions were chosen, which formed the basis of project activities. First, one of the organizational conditions is the creation of a closed economic chain from all the projects presented by the student group, in which any business project is directly related to one or more types of business represented by other students. These projects should be an economic system in which the needs of the business can be closed by other current businesses. The formation of such a closed system allows students to make information and economic exchange of business models of fellow students. Students exchange basic information about their business and offer a list of items made up within the project. At the level of organizational and

pedagogical conditions, such activity involves the use of computer classes with the Internet and local network and the use of system-activity and competence approaches. Responsible attitude to one's own brand initiates the participants of the business game to recall, for example, the 'Brand Onion', a model of the brand and the structure of its promotion methodology described in the book "The Quintessence of Strategic Management" (Kotler, Berger, & Bickhoff, 2010). Modern researcher Trishchenko (2018) note that it is the work on the brand, data collection at the stage of formation of the project idea that presents the greatest difficulty for students.

At the level of psychological and pedagogical conditions, information exchange allows students to show increased attention to the quality of their project, because they present it not only to the teacher, but also to their fellow students. This situation corresponds to the concept of openness and accessibility of information in a digital society, allows students to focus in their projects on the desire to adapt the idea of their product to the requirements of financial attractiveness. This concept eliminates the simplification of the project: the transition from the level of "the teacher will like it" to the level of "the consumer will like it". This statement of the problem allows students to think about such factors of business attractiveness as competitiveness in the market, the correct advertising slogan, to think over the concept of promotion of goods or services.

According to researchers (Cicmil & Gaggiotti, 2018), who study the implementation of project management practices in the educational process, the most difficult aspect of the project submission process is the "clash with reality". We believe that the group discussion of projects gives an idea of what difficulties a novice manager or entrepreneur may face.

The deeper students immerse in the design process as a group project, the more they are captured by the project activity, the business concept itself, and not the desire to get a mark. This approach is correlated with the requirements of the digital economy: result orientation, the end user and the ability to present information in the most correct way. Such a concept of the educational process provides a competitive advantage to professionals with such competences. In General, the role of game modeling in the training of teachers of vocational training has been repeatedly emphasized in the framework of the scientific school of G. M. Romantsev (Fominykh, Uskova, Mantulenko, Kuzmina, & Shuravina, 2016).

One of important stages of the preparation for work with business plans for students is experience in using software products for economic purposes, containing a simulation modelling. Since modules of simulation modelling are currently components integrated in the economic contour of most corporate information systems, it is important for students to gain experience with such a software add-in. As part of business planning, the student using this module examines the project for risk resistance. The software product allows to consider possible tactics at the initial stage to increase risk tolerance, to track the parameters that change in the process of specifying risks at the level of external factors.

The experience of such work on a business project allows students to form a system of interdisciplinary connections, because at this stage several disciplines are integrated. Thus, future teachers of vocational training implement the project giving a systematic view of the business design.

The quality of training of teachers of vocational education and its implementation in each student in the future affects the professional competence of teachers and the perception of them by their students.

This fact is noted not only by the followers of scientific school of G. M. Romantsev, but also by foreign researchers Bakar (2018) and Pălășan (2015).

At the level of didactic training conditions, students work not only with laboratory works, textbooks on business planning and economic informatics, they are also offered fragments of monographs on economic theory, such as monographs on the Monte Carlo method. This approach allows students to realize the value of scientific knowledge in solving business problems, which is one of the educational goals, namely – to teach methods of selection of information in terms of its redundancy. Thus, at the end of the course students do not open Wikipedia to clarify a particular issue in the field of economics, which is already an important sign of understanding the role of scientific knowledge in the process of creating business projects.

We believe that the discipline, which is based on information openness, realism of the project, thinking over information links, is able to greatly influence the personal attitude of students to the design process. This approach is related to the concept of reflection inherent in modern didactics (Chupina, Pleshakova, & Konovalova, 2016).

An unusual step in summarizing the results of the design is the examination in such a form, when the exam participants take on the role of experts in the field of business planning and not only present projects, but also evaluate them. Their task is to find disadvantages of the project, discrepancy between the idea and its implementation. All components of the project are analyzed: business attractiveness for investors, payback period, number of personnel and production volumes, pricing policy. It is interesting that students refuse to submit the project for review by a group of expert colleagues when they are not well prepared. We believe that the so-called professional reflection works (Chupina, Fedorenko & Pleshakova, 2018).

In fact, our vision correlates with the model of teacher's educational competence proposed by Rybakina (2018), who identified social, substantive and reflective components. We believe that we have implemented the prerequisites for the development of all three components, which resulted in a stable educational result.

#### **4. Purpose of the Study**

Thus, the aim of the study was to confirm the hypothesis that training in quasi-professional project activities effectively motivates and develops students. We also considered the questions of creation of psycho-pedagogical conditions for the successful implementation of the design, "getting used to" the self-image of a business owner. In our opinion, a "lived" and "felt" business project, non-standard approaches to the organization of the learning process and the use of new information technologies (for example, the study of project sustainability using the Monte Carlo method) together can give a lasting educational effect.

Close communication and information exchange, formed by team interaction, stimulates work on projects, maintains a single pace of work on projects. As the "sales" go hand in hand with the design process, the learners explore the demand for products for the whole group, interacting with future "customers", that increases interest in their project, making it more "realistic". For students, this approach

is a stimulation of cognitive interest, orientation from the position of "do and pass" to the position of "feel and understand".

This concept correlates with the model of monitoring of professional and pedagogical competences of teachers of the system of vocational training (Andryukhina, Dneprov, Sumina, Zimina, Utkina, & Mantulenko, 2016), and it is focused on the General aspects of the development of practice-oriented training system.

Since researchers are increasingly talking about the need to adapt to professional activities for novice teachers, the possibility of creating a system of formation of "soft skills" (Tang Keow, Mohd, & Hashimah, 2015), our training structure involves working on skills such as communication, teamwork, entrepreneurship, ethics and morality (regulated in the process of group discussion), understanding the value of professionalism (manifested in the form of rejection to submit projects of poor quality and the desire to evaluate projects, which are prepared successfully) and leadership (manifested in the process of team work on the project).

The study of this issue will enable teachers of vocational training not only (Crowley, 2017) to implement an educational program in the disciplines of the industry, but also to create and promote distance learning courses, that is currently one of the ways to organize retraining..

## **5. Research Methods**

In our study, the following methods were used: analysis of the current situation in the practice of training teachers of vocational training for the use of new IT in the field of economics and management; synthesis of private and general methods of teaching and implementation of group dynamics, as well as approaches to the formation of a holistic educational process.

We considered the following approaches: system-activity, competence and project approaches.

Both at the beginning of the research work and during the project implementation the method of observation was used. Regular discussions were held with students on the topic of interest in a particular project activity. Students worked on an essay on their priority methods and approaches to the organization of business planning training.

## **6. Findings**

At the final stage, students are offered a business game. In which each project is presented to two teams-investors and employees. Each project is evaluated from the point of view of financial attractiveness and reasonable considering risks (this component is evaluated by a team of investors), and certainly the level of submission of the project (evaluated by the team staff). Following the presentation of projects, the best projects receive conditional investment from the team of investors. In the game each student acts not only as a person who represents his project, but also as a person who tries to evaluate someone else's project to find advantages and disadvantages of the project.

According to Prokhorov (2006), the Russian economy needs to move away from "catching-up modernization", for which "society must use innovation in a variety of industries and activities."

Considering, for example, the components of pedagogical skills considered in the work of Sergeev (2015) and updated in the work-review Sokolova & Tsibizova (2018), we can not but note that in our study we relate quasi-professional activities implemented within the framework of an integrated educational process, with most aspects listed by the authors.

Evaluation of the results of such training correlates with the standard methods of measurements, which are partly described in the publication Tomilcev & Maltsev (2018) and can also be taken into account with the help of the Dublin descriptors competences.

## 7. Conclusion

We believe that the skills of implementing business projects using automation are among the most important for a specialist in the field of economics and finance in the digital economy. According to the feedback of students, the process of such design and project presentation scheme gives them not only skills in the use of information technologies in business planning, but also allows them to assimilate a layer of knowledge gained in several disciplines (interactivity of project activities), which, as a result, allows them to increase their self-confidence (as the ability to use knowledge in practice). Such a complex project is not only interesting from the point of view of the formation of skills in working with information technologies and processing of economic information, but also from the point of view of the transfer of pedagogical experience, which will allow in turn to apply such technologies for training economists in the system of secondary vocational education..

## References

- Andryukhina, L.M., Dneprov, S.A., Sumina, T.G., Zimina, E.Y., Utkina, S.N., & Mantulenko, V.V. (2016). The model of monitoring of vocational pedagogical competences of professors in secondary vocational education. *International Journal of Environmental and Science Education*, 11(14), 7016-7034.
- Bakar, R. (2018). The influence of professional teachers on Padang vocational school students' achievement. *Kasetsart Journal of Social Sciences*, 39(1), 67-72. <https://dx.doi.org/10.1016/j.kjss.2017.12.017>.
- Chapaev, N.K. (2014). Acmeological mission of vocational education in the context of the integration of education, industry and science. *Scientific Dialogue*, 2(26), 126-145.
- Chupina, V.A., Fedorenko, O.A., & Pleshakova, A.Yu. (2018). Methodology of professional self-reflection development (on the example of management activity). *International Journal of Engineering & Technology*, 7(2.13), 183-188. <https://dx.doi.org/10.14419/ijet.v7i2.13.11684>.
- Chupina, V.A., Pleshakova, A.Y., & Konovalova, M.E. (2016). Methodological and pedagogical potential of reflection in development of contemporary didactics. *International Journal of Environmental and Science Education*, 11(14), 6988-6998.
- Cicmil, S., & Gaggiotti, H. (2018). Responsible forms of project management education: Theoretical plurality and reflective pedagogies. *International Journal of Project Management*, 36(1), 208-218.
- Crowley, C.B. (2017). Professional development as product implementation training. *Teaching and Teacher Education*, 67, 477-486. <https://dx.doi.org/10.1016/j.tate.2017.07.015>.
- Dorozhkin, E.M., Kalimullin, A.M., Migacheva, G.N., & Sokolova, T.B. (2018). Optimization of the subject matter of profile training disciplines for bachelors' vocational education on the basis of occupational standards. *Eurasia Journal of Mathematics, Science and Technology Education*, 14(3), 859-876. <https://dx.doi.org/10.12973/ejmste/81059>.

- Dorozhkin, E.M., Zeer, E.F., & Shcherbina, E.Y. (2017). Training modernization strategy of the teachers of vocational education. *Journal of Engineering and Applied Sciences*, 12(Special Issue 11), 9061-9067. <https://dx.doi.org/10.3923/jeasci.2017.9061.9067>.
- Fedulova, K.A., Fedulova, M.A., Kirillova, Y.S., Vagina, A.I., & Kuznetsov, T.M. (2017). Special competence in the structure of vocational pedagogical integrity in the sphere of vocational education. *Eurasian Journal of Analytical Chemistry*, 12(7b), 1265–1273. <https://dx.doi.org/10.12973/ejac.2017.00252a>.
- Fominykh, M.V., Uskova, B.A., Mantulenko, V.V., Kuzmina, O.N., & Shuravina, E.N. (2016). A model for the education of a student of a vocational pedagogical educational institution through the gaming simulation. *IEJME-Mathematics Education*, 11(8), 2814-2840.
- Kotler, P., Berger, R., & Bickhoff, N. (2010). *The quintessence of strategic management. Want you really need to know to survive in business*. Berlin: Springer.
- Neupokoeva, E.E., Chapaev, N.K., Chubarkova, E.V., Tolstova, N.S., Fedulova, K.A., & Tokar, A.V. (2017). Peculiarities of preparation of a vocational teacher for use of application software taking into account the requirements of the federal state education standard. *Eurasian Journal of Analytical Chemistry*, 12(7b), 1383-1398. <https://dx.doi.org/10.12973/ejac.2017.00265a>.
- Pălășan, T. (2015). Increased professionalization, priority of teacher training. *Procedia - Social and Behavioral Sciences*, 180, 930-936. <https://dx.doi.org/10.1016/j.sbspro.2015.02.246>.
- Prokhorov, A.P. (2006). *Russian model of management*. Moscow: Eksmo.
- Rybakina, N.A. (2018). Obrazovatel'naya kompetentsiya: sushchnost i pedagogicheskaya model formirovaniya v kontekste nepreryvnogo obrazovaniya. [Educational competence: the essence and pedagogical model of formation in the context of lifelong education]. *Obrazovanie i nauka - The Education and science journal*, 20(5), 32-55. <https://dx.doi.org/10.17853/1994-5639-2018-5-32-55>.
- Sergeyev, M.G. (2015). *Development of pedagogical skill of the teacher in modern conditions: monograph*. Moscow NOU VPO MIL.
- Sokolova, A.S., Sergeeva, M.G., & Samokhin, I.S. (2018). On the issue of building a professional career of a university teacher in the Russian Federation. *Scientific Dialogue*, 3, 304-318. <https://dx.doi.org/10.24224/2227-1295-2018-7-331-345>.
- Sokolova, N.L., & Tsibizova, T.Yu. (2018). The teacher as a competitive specialist. *Scientific Dialogue*, 4, 373-380. <https://dx.doi.org/10.24224/2227-1295-2018-4-373-380>.
- Tang Keow, N.H., Mohd, Y.N., & Hashimah, H. (2015). Soft skills integration in teaching professional training: novice teachers' perspectives. *Procedia - Social and Behavioral Sciences*, 186, 835-840.
- Tkacheva, O.N., Dorozhkin, E.M., Scherbina, E.Yu., & Korotaev, I.S. (2017). Educational institutions director's economic competences development at in the system of continuing professional education. *International Journal of Advanced Biotechnology and Research*, 8(4), 1310-1317.
- Tomilcev, A.V., & Maltsev, A.V. (2018). Problemy otsenki professionalnoy podgotovki: metodologicheskiye podkhody. [The problems of professional training assessment: methodological approaches]. *Obrazovanie i nauka - The Education and science journal*, 20(4), 9-33. <https://doi.org/10.17853/1994-5639-2018-4-9-33>
- Trishchenko, D.A. (2018). Opyt proyektного obucheniya: popytka obyektivnogo analiza dostizheniy i problem. [Experience of project-based learning: an attempt at objective analysis of results and problems] *Obrazovanie i nauka - The Education and science journal*, 20(4), 132-152. <https://dx.doi.org/10.17853/1994-5639-2018-4-132-152>.
- Walder, A.M. (2017). Pedagogical innovation in Canadian higher education: Professors' perspectives on its effects on teaching and learning. *Studies in Educational Evaluation*, 54, 71-82. <https://dx.doi.org/10.1016/j.stueduc.2016.11.001>.
- Zyrianova, N.I., Dorozhkin, E.M., Zaitseva, Y.V., Korotayev, I.S., & Shcherbin, M.D. (2018). Trends in and principles of training vocational teachers. *International Journal of Engineering & Technology*, 7(2.13), 200-204. <https://dx.doi.org/10.14419/ijet.v7i2.13.11687> . .