

THE INNOVATIVE METHODS OF FUTURE PROFESSIONAL STAFF EDUCATION

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Abstract: The article presents the results of the carried out analysis concerning the level determination of the use of innovative methods of teaching specialized subjects in preparation for the profession of logistics, and to identify and determine possible changes in the types of teaching methods, used in relation to carried out in this area of research by specialists and experts in the past 15 years. The purpose of this article is to realize that the education system in all schools modes in Poland do not prepare future potential employees to complete a chosen profession, in accordance with the employers expectations and the needs of the present times, or does not predispose to rapid changes in the profession.

Key words: teaching methods, survey, students, teaching aids.

Introduction

Continuous changes in the every business organization environment tend to seek new solutions in the field of improvement of professional personnel at all levels of the organization, both in the management and professional duties performance by individual employees on operational levels. Experience, knowledge and continuous professional development of each employee, cause that the sum of the individuals achievements affects the growth condition of the company and increase its competitiveness. However, the quality of acquired knowledge is the basis of the objectives of the enterprise, which depends not only on the efficient use of data and information resources, but also on the people knowledge, because the real statement is that knowledge enriches the knowledge. It is necessary to look for opportunities to facilitate and speed up the process by applying the latest methods of supporting and complementary abilities, intelligence and knowledge workers.

Today, company's structure should be determined by its context, and designed to include both, enterprise's material and knowledge resources. Should strive to effectively acquire knowledge and its continuous renewal, because knowledge, which has not been used to a greater extent than machinery and equipment, has been losing its value. Therefore, it is necessary to apply such methods of teaching and learning, that intellectual capital should contribute to the growth efficiency of any national organization, which in turn contributes to a faster achievement of the objectives, and thereby enhance competitiveness at international level.

Young, recruited workers have a certain amount of knowledge, acquired during their studies and practices, they are full of enthusiasm and dedication to the company until they see the opportunity to develop their capabilities and knowledge deepening, and thus the usefulness and gaining higher positions, which also involves higher salaries. A more ambitious attempt, by their selves, on a regular

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basis, complement the knowledge and experience, based on innate abilities and acquired instilled learning methods. But if they really have the ability to use modern methods of learning, or rather, in most cases, they use their innate abilities and memory. And yet, there are many methods of raising knowledge, using the latest scientific and technological achievements in this field. It should be asked whether they are used and disseminated on a daily basis, starting from kindergarten and ending on expanding knowledge in organizations. The conducted research in this area has shown, however, that traditional teaching methods are still dominant.

The essence of learning methods

The development of ICT techniques, create ideal conditions for the development of a completely different teaching methods, that should bring the expected results, but are usually used within laboratories and experimental practices. It should bring existing and commonly used methods of acquiring and improving knowledge, but are they universal for sure?

Methods of teaching and learning exist and thrive from the human being appearance. Initially, these were observations and imitation of the surrounding nature, but the rapid society development and the need to communicate, contributed to the creation of scripture in 3000 BC, and in the first century of our era was transformed into the alphabet. The moment of papers invention, in the second century of our era, created the possibility of the information and knowledge transmission and their fixation. Since the dawn, every man strives to satisfy his own curiosity by asking questions to himself and others, which becomes the basis for the knowledge development and deepening. Together with the increasing number of questions and unsolved problems, specialized field of knowledge in the sciences: mathematics-logic, natural sciences and the humanities had been created, which established from a religious and philosophical general background (WIKI). The desire to assimilate large amounts of information, caused that variety of teaching methods had licked into shape. The origins of the introduction of generally applicable methods of teaching, fall on the twelfth century, the first universities in Paris, Bologna, and Oxford Universities (1167) and Cambridge (1209) were established.

Based on many published definitions of learning methods (Okoń, 1992), can be broadly stated that it is achieving the objective in providing knowledge and education of the young generation, according to the prevailing patterns, by using a combination of proven traditional and intuitive means of teaching. Problems of teaching and their methods are the subjects of research conducted by Joachim Jung and Christopher Helwig, in the XVII century. They were German authors of the book "A short report of teaching, or Ratychiusz teaching art", and Czech philosopher and educator, John Amos Comenius, the author of the famous work "The Great Didactic", in which he presented an "universal teaching art of everything." However, as the father of education is takes nineteenth - century psychologist and philosopher JF Herbart. At the turn of the XIX and XX centuries,

didactic had changed its face and become a theory of learning, through John Dewey's activities (Schrade, 2010). Currently didactic consists many elements such as the process of teaching and learning, the ability and willingness to self-extend and deepen the knowledge, proper subject matter and organization of classes and the means and methods of teaching.

The evolution and teaching methods classification

As a result of the turbulent environment in every area of life, especially the rapid development of ICT techniques, based on old ones, proven teaching methods, new ones have been created. They use modern tools to create innovative teaching methods, adapted to both, the general mentality of the contemporary information society and to the individual human beings. Discussions, both, on harmonize the definition of teaching methods as well as on their proper standardization and typification continuously roll in circles of psychologists, philosophers and educators. A very important reason is the development of resources and teaching tools, conducive to the emergence of teaching and learning new methods. The currently used methods evolution and classification, based on the key studies presented over the last fifty years by: American educator Clark Kerr, Kazimierz Sośnicki, Bogdan Nawroczyński, Russian educators LJ Lerner and M.N. Skatkina (Głowacki), Vincent Okon (Francuz, 1995), Czesław Kupisiewicz (Kupisiewicz, 2005) and many other authors of publications on similar topics, can be presented graphically.

Figure 1 presents the evolution of the sequence of identified teaching methods, described in detail in the publications, appearing over several recent years, in order to general systematize and organize, what was the basis of the research and to draw clear conclusions for the purposes of this article.

In modern reality, constant changes in the strategic areas of everyone's life are following. Dynamically changing environment, under which appears the continuous diffusion of new processes, related to innovative technologies in each area of activity, creating real and virtual world, impinge on the development of society and, therefore, on individual units development. Striving for openness, Polish economy is looking for people, whose education, skill for deepening and broadening of knowledge, meet the growing globalization, increasingly competitive, and thus make quick and accurate decisions. Therefore, the evolution and classification of methods of education presented above, will never be complete and must be adequately alter according to the environment transformation (Sroka, 2010).

Presented in figure 2 currently used types of teaching methods are not final, because along with the development of new, innovative technologies, and dynamic environment transformations, new jobs will be created, which should begin to predict and depending on the economy needs, adapt the methods and means of training for, both, the younger generation as well as the already graduated employees.

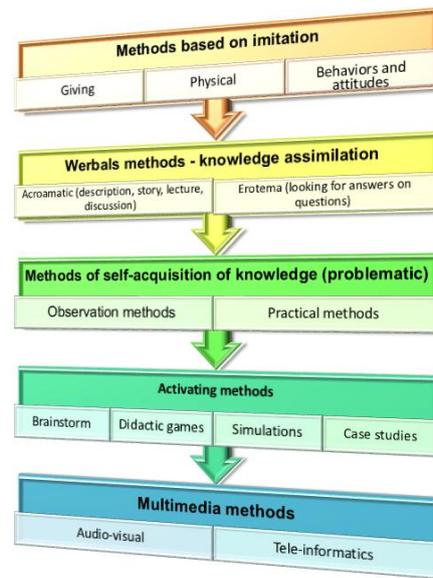


Figure 1. Evolution of teaching methods

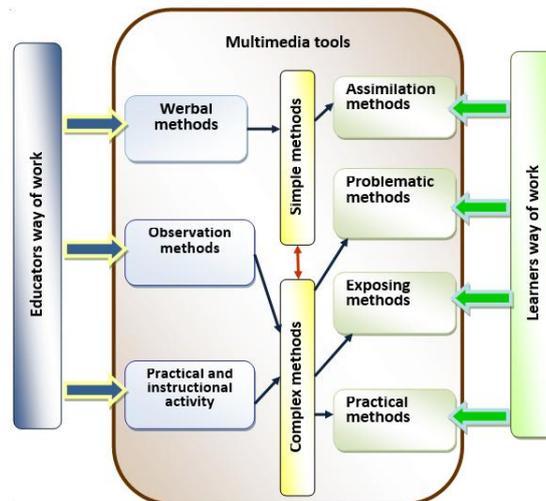


Figure 2. Types of teaching methods

There is no ideal, the most effective method of teaching, the best achievements brings a combination of different ways of teaching, which can be deduced from the figure stated above. The choice of methods, their mergers and the corresponding transformation to a large extent depends on the teacher, his professional training,

experience, skills of self-education and inner intuition, so needed in every profession. In many cases, the quality of education depends not only on studio equipment and material conditions of the educational establishment, as it is often perceived, but also depends on teacher's attitude and his willingness to innovate. Replacement stereotypical, traditional ways of conducting classes for thoughtful, prepared in an unconventional way, will bring better results: raise interest in and willingness to deepen already assimilated knowledge, refine the ability of logical thinking and creative work, and evolve, a conviction of own value. More and more often Kurt Lewin's model and innovative teaching methods described by David A. Kolb and Alice Y. Kolb are applied. (Kolb and Kolb, 2005).

The purpose of this article is not to discuss the presented teaching methods, because it has already been done by professionals and everyone interested in well-know and understand them, but realize that the education system in all modes of Polish schools, do not prepare future potential employees to accomplish in their chosen profession, accordance with the expectations of employers and the needs of the present, or does not predispose to rapid changes in the profession. More alarming phenomenon is the problem of choosing a profession and field of study, which affects more than 80% of secondary schools graduates.

The analysis of used teaching methods

Modern teaching methods should, from an early age, prepare the young generation for the practical use of the acquired knowledge in their work, and develop the ability to search for new sources of information and its deepening. To what extent innovative methods of training are actually used and supporting them with modern teaching tools have shown the results of an analysis of the research, that included both, primary and secondary data.

The review of research on used teaching methods

The primary data were derived from the questionnaires, interviews, surveys and observations, and sources of secondary data were materials and reports, summarizing the results of studies conducted over the last 15 years. Sources such as compilations, analysis, reports and statements published in the literature by explorers who answered the above questions were taken into account. Data contained in publications of T.Pilch, E. Nęcka, Marian Sniezynski, Czeslaw Kupisiewicz and Vincent Okon and Alice Kolb and David A. Kolb were deeply analyzed. The selected literature includes both, data from a study conducted by these authors as well as data from international reports.

The most valuable reports were taken into account, that include trying to set education future directions including the socio - economic changes and the use of innovative solutions for industry, technology and communications, they include as follows (Kupisiewicz, 2005):

- Faure Report, President of the International Commission for the Development of Education, which creation was based on visits to schools in 23 countries in 1979, and was published in Poland in 1982, under the title "Learning to be". The main message of the report was the statement that continuing education should be continuous, no matter of age, and its goal should be learning of scientific thinking.
- Botkin Report, who was given the title "Learning without borders", has been developed under the auspices of an international group of experts, belonging to the so-called. Club of Rome, it was published in Poland in 1982. The idea behind the report was to move towards innovative education in relation to the enormous progress of science, technology and culture.
- Delors Report created by the International Commission on Education in 1996, with the title "Learning. The treasure within", which was released in Poland in 1998. Like Faure report emphasizes the role of lifelong learning, which should be based on four pillars: "*Learning to know, learning to do, learning to live together, learning to be*".
- European Commission Report, so called White Paper of Education and Training, published in 1995, in which, as in many previous reports, was emphasized the importance of continuous learning, so every man should be able for professional and economic activity and functions well in the information society.
- Mayor Report, which was published in Poland in 2001, with the title "The future of the world", and was based on the analysis of documents, statistics and studies of eminent experts from international institutions. The main proposition of this document is to build a lifelong learning system, using the latest technologies to enable for distance learning, which will facilitate the acquisition of knowledge to anyone at all possible levels of education.
- B.S. Bloom's concept of causative education, so education for the championship, emphasizes qualitative approach to education, as a result of which a person should be able to creatively solve problems in the economic, political, and economic areas.
- W. Okon's A. Y. Kolb's and D.A. Kolb's concept of multilateral training pays particular attention to the three types of learner activity: intellectual - discovering knowledge and adopt it in order to explore the world, emotional - learning through experiencing and creating value and practical - learning by doing, creating and transforming reality, applying experiential learning model (Kolb and Kolb, 2012). "*All these activities should serve the cognition of reality and a creative influence on her*".

In summary, we can conclude, that the values and demands included in the above studies, had and have a significant impact on the changes occurred in Polish education and its continuous formation. Further tests are needed to modify the education system, taking into account the dynamic changes and technological advances, that will encourage the development and rapid implementation of

innovative ideas to tackle the problems, associated with the growing requirements of the labor market. But the education system is the most important process of education, which is a chain of related and interdependent elements, which besides the objectives, content and principles of the organization of education, are also the methods and means of teaching. Significant research in terms of the use of modern teaching methods and means, which have completed consideration of this article, were conducted by: Waldemar Kozłowski, Edward Nęcka, Christopher J. Szmidt and Marian Sniezynski.

Waldemar Kozłowski believes that knowledge is passed by using traditional methods, verbal methods predominate, giving the bare facts. What is lacking is the teachers inventiveness, and perhaps the knowledge how to apply the methods to variety the lectures, enriching them with anecdotes and stories, related to the topics theoretically discussed (Kozłowski, 2004, 2006).

On the other hand, E. Nęcka and K.J. Szmidt, said that gained by the students theoretical knowledge, enabled to reckon subjects and pass the exams, but does not facilitate creative action. Therefore, it is necessary to use participatory methodologies to acquire knowledge and, developing practical ability to use theoretical knowledge problem solving and stimulate the imagination, in a greater extent (Szmidt, 2007).

In contrast, M. Sniezynski, to assess the level of conducting classes and the ability to establish a dialogue between the teacher and the listener, which is often a consequence of the selection of appropriate teaching methods, carried out, precisely in this aspect, very insightful study. They were conducted on 1,211 hours of classes in various subjects and in all types of schools. The results of these studies have shown, methods in the form of tedious lectures and working with text, were the most commonly used, because on over 60% of all classes, on all kinds of activities, both in lectures, exercises or laboratories, genuine dialogue inducing listeners to logical creative thinking and drawing bold, original proposals, are missing out.

Taking account the secondary data, contained in the publications of these seekers, researchers and experts, in the area of searching for the best and the most attractive ways and means of education, from early years to the end of life, it can be concluded that, in the Polish education, dominate methods of feeding for approximately 68% of hours of various types of classes, methods of activating and stimulating self and creative thinking are used on about 25% of teaching hours, and about 7% of the hours falls on practical exercises and educational games using informatics tools.

The aim of survey and characteristics of focus group

In order to determine the level of use of innovative methods of teaching specialized subjects, preparing for the logistics profession, and to identify and determine possible changes in the types of teaching methods used in relation to the secondary data, a study, which involved the analysis of survey results, and draw conclusions

from their observations, was conducted. The research was also aimed at understanding the expectations and preferences of students, regarding educational methods, evaluation of existing and frequently used tools and teaching aids and barriers, to detect the use of modern teaching methods. The study involved 90 I-grade students of logistics, from II, IV, VI semester and from IV semester II grade. Among the students, 13 of the work, and 9 of them in profession, which is incompatible with the field of study.

Worrying is the fact that only 20% of respondents, chose a field of study consistent with their interests, and up to 80% of students did not know, while learning in high school, what profession and what further education path they should choose. These results force to conclude, that the school is not able to awaken interest in the young generation and demonstrate the practical application of acquired knowledge. The structure of the focus group is shown in figure 3

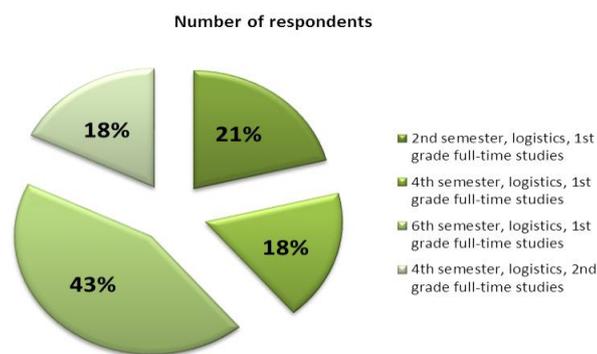


Figure 3. The structure of focus group

Three main groups of teaching methods were evaluated: verbal, independent investigation into the knowledge and involving the acquisition of knowledge, divided into categories according to the classification adopted in Figure 1. Particular attention is paid to practical methods, which play an important role in the preparation of a professional.

The research results presentation

The task of teachers of subjects which are obligatory in logistics studies, is to provide knowledge on planning, control and management processes, goods flows, information and funds in all areas, and at every level of the companies organization and enterprises, operating in the supply chain. Logistician should have the ability to solve problems, and make quick and accurate decisions in different company's organizational units, including the area of supply, production, distribution. That is why these subjects in logistics studies are interdisciplinary. In the flow management operations research, techniques of simulation and forecasting

supported by appropriate computer programs are used, and make it possible to find a correct solution of any complex and distributed problems. Therefore, teachers need to use a variety of teaching methods, which combined together will allow students to quickly memorizing the theoretical basis, and develop the skills of practical application of acquired theoretical knowledge.

The results of the survey analysis, comparing students' expectations with respect to teaching methods, which according to them should be implemented with the acquisition of content items logistics, and are actually used by academics are shown in figure 4.

Based on the analysis of questionnaire research and the results graphical presentation, we can conclude that the smallest differences between the expectations of students, and the actual state, relate to the lecture and the description in the area of verbal methods, because only 3.34%, whereas only 36% of students willingly, and without pressure attend a lecture. About 60% of respondents stated that this form of classes was usually tedious and formalistic.

In the frame of activation methods of knowledge acquisition, the smallest differences between expectations and reality, can be seen at the classes in the form of project and brainstorming, where the difference is 7.78%. Slightly bigger is the difference, seen at the classes in the form of problem solving in subgroups, is 17.78%.

Practical exercises as a form of practical methods are very popular form, from which students expect to understand the acquired theoretical knowledge in the classroom, using the method of feeding and the skills acquisition of its application, in solving various logistics problems. The difference between the expectations of the respondents, and the reality in terms of forms of conducting these activities and the number of hours, is 17.78%, which stems from the fact, that a combination of many ways of learning, such as decision games, simulation, staging, etc., with the support computer programs are rarely used on them. Such classes are often limited to supplementing theoretical knowledge and independent problem solving, which is also confirmed by carried out observations.

The results visualization of the analyzes are presented in figure 4. It clearly illustrates the needs of students in terms of teaching methods that could be used.

All of them, unanimously say, that they realized the importance of professional practices, completed during the study. All are in favor of increasing the compulsory practical classes in various possible forms, including a self-solving logistical problems in specialized laboratories. But only 28% of respondents are able to work for free to gain a necessary experience. Other respondents, 72% believe, that the university is committed to ensure a career-guidance path.

Significant differences can also be seen within other, rarely used, forms of teaching, especially in terms of activating methods to acquire knowledge. The greatest disparity, as much as 80%, can be seen in the expectations for any type of educational games, which in this case are included in decision games, simulation, situational and staging. The presented results of the study, clearly shows that

students like to participate in the attractive activities, varied in different ways of their conduct and supported by modern technologies.

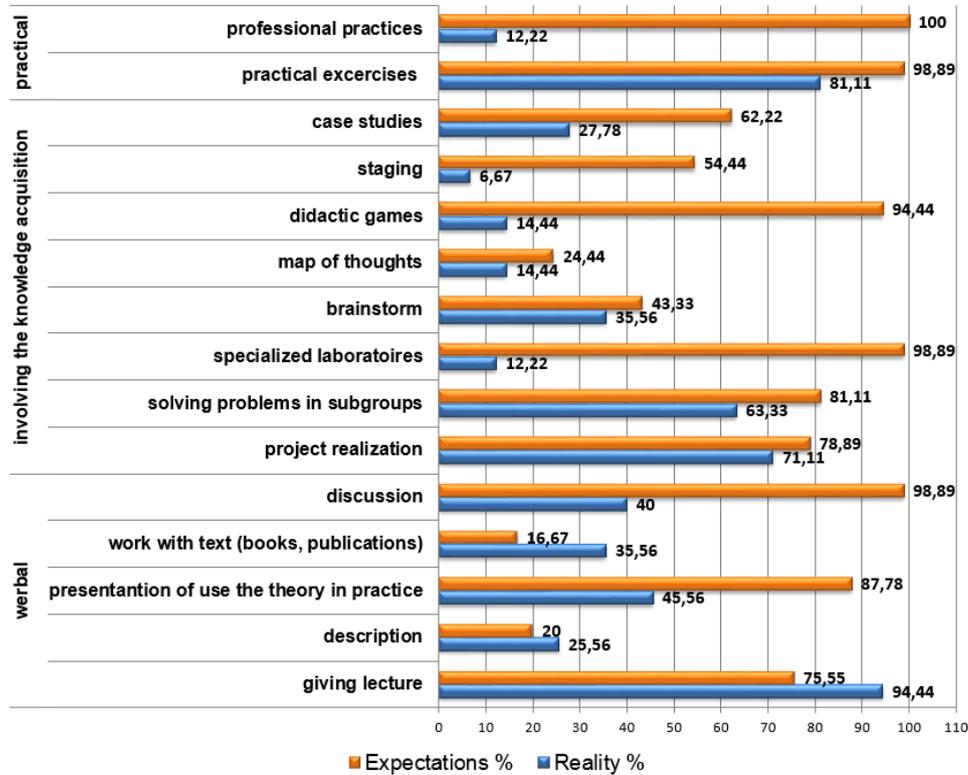


Figure 4. Teaching methods used on classes

The second part of the study is concerned on the tools and teaching aids, used in the classes. The figure 5 presents the results of the responses analysis.

The analysis results of the study, suggest that the young generation likes to use modern technologies and learn with its help. Unanimously, all students are willing to use the interactive whiteboard and solving logistical problems in laboratories, with modern equipment, adapted to the content of teaching, eg in laboratories: logistics engineering, logistics and forwarding, warehousing or logistics in a virtual laboratory, where, as good as in the real world, they can look at the mechanism of goods automatic identification, storage technologies, prepare to get to work in the transport and logistics companies. This kind of laboratories are equipped, both in ERP and WMS system, as well as in specialized software, needed for modeling and solving logistical problems and carrying out simulations.

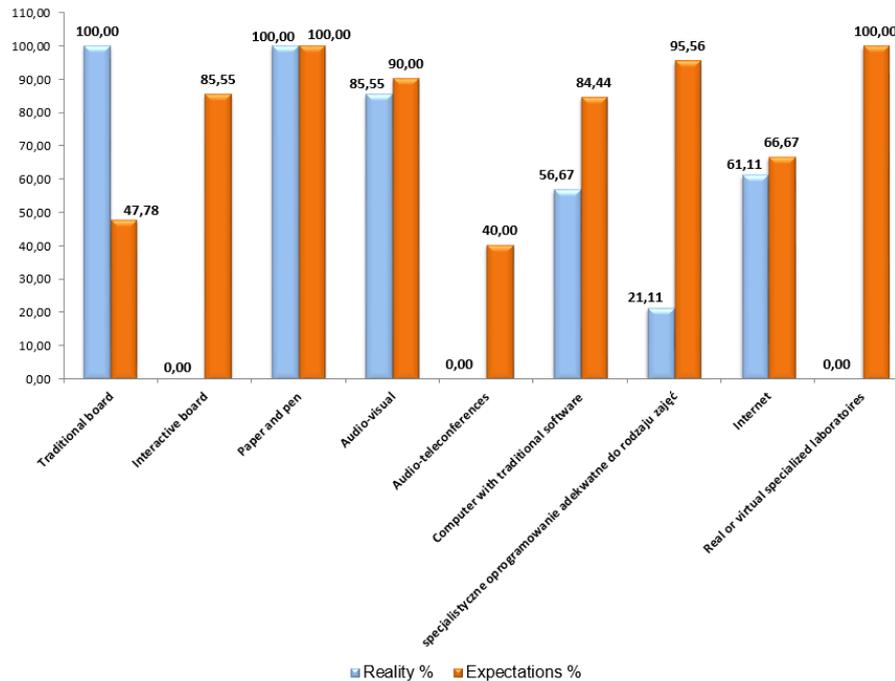


Figure 5. Teaching aids used in the classes

From the graphical presentation of the results of the research questionnaire, can unequivocally state, that the students in the class need pen and paper, but they would like to use modern technologies, especially in the training, design, and laboratories, to gain a practical knowledge and increase opportunities to find a job in their profession. Nearly 100% of respondents admit, that they most lack the tools and teaching aids in the form of real or virtual laboratories, and specialized software facilitates analyzing and solving logistical problems.

From another questionnaire responses, concerning on distance learning, can be concluded, that the respondents prefer the blended learning, which stated 62% of students, traditional teaching have chosen 33%, of respondents, and 5% of all respondents only, have supported distance learning. Generally, students are not interested in a stand-alone knowledge acquisition, as answers about distance learning show. Although the university carry out e-learning, only 32% of respondents were aware of that, with only 13% of them attending classes.

Conclusion

Education is a lifelong process, subject to permanent change and cannot be separated from the dynamic changes, taking place in the modern world. Modern education should rely on a constant search for new ideas, methods and tools of

education at all levels, and take into account the processes of globalization, demographic change, should take also into account the emergence of new manufacturing technologies, processes and technologies of ICT transformation taking place in the labor markets, adapt the educational structure to employment structures and pursue lifelong learning. Future education is also the individualization and personalization of learning, raising education awareness, and practical skills for the labor market.

The changing nature of competing enterprises, makes growing importance of the ability to apply the acquired knowledge, employee's creativity, capability and adaptation to dynamic changes in contemporary reality. So that polish education has the characteristics of modern education and continuing, it is needed to seek new teaching methods, supporting them with modern scientific achievements, in the form of tools and resources, to achieve the stated objectives, namely to prepare the young generation to consciously choose an occupation and possible amendment, which takes place more often. Generally speaking, the education of future professional personnel, should be consistent with the expectations of students and employers.

Overview of research, carried out so far by specialists and experts in the field of teaching and analysis of the research questionnaire, relating to the present methods of teaching students of the Faculty of Management, in logistics studies, proved that in spite of the existence and the continuous emergence of modern tools and teaching aids, giving methods dominate on 60% of all teaching classes. All the respondents expect a real professional practice and more practice exercises and laboratory classes with the possibility to use the modern teaching aids.

This situation is caused by lack of ingenuity among teachers, and their willingness to find common points between programming content and the student needs. The teacher should act as a mediator, which eliminates all kinds of discrepancies between the use of a variety of teaching methods, the knowledge contained in the literature and student expectations. Unfavorable to education is a rigid application of the uniform teaching methods and traditional ways of teaching. We need educators with the vision and passion, who have no regard for the time of preparation classes, are innovative, creative, changing their mindset, habits and traditions, adapting to rapidly changing environment.

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INNOWACYJNE METODY KSZTAŁCENIA PRZYSZŁYCH KADR ZAWODOWYCH

Streszczenie: W artykule zaprezentowano wyniki analizy przeprowadzonych badań dotyczących określenia poziomu wykorzystywania innowacyjnych metod nauczania specjalistycznych przedmiotów przygotowujących do zawodu logistyka oraz zidentyfikowania i określenia ewentualnych zmian w zakresie stosowanych rodzajów metod nauczania w stosunku do wykonanych w tym obszarze badań przez specjalistów i ekspertów w okresie ostatnich 15 lat. Celem artykułu jest uświadomienie, że system edukacji we wszystkich rodzajach polskich szkół nie przygotowuje przyszłych, potencjalnych pracowników do zrealizowania się w wybranym zawodzie, zgodnie z oczekiwaniami pracodawców i wymogami współczesności, bądź nie usposabia do szybkiej zmiany zawodu.

Słowa kluczowe: metody nauczania, badania, studenci, pomoce naukowe.

未來的專業員工教育的創新方法

摘要: 本文介紹了進行分析的關於使用教學專業科目，準備物流行業的創新方法的水平測定結果，並識別和確定教學方法的類型可能出現的變化，在使用就在過去的15年進行了這方面的研究由專家和專家。這篇文章的目的是要認識到教育系統在波蘭的所有學校模式不準備將來有潛力的員工來完成所選擇的專業，按照雇主的期望，是當今時代的需求，或不易患快速改變職業