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ACTUAL INNOVATION TRENDS OF THE EDUCATION OF ECONOMIC SUBJECTS IN SECONDARY SCHOOLS

AKTUÁLNE TRENDY INOVÁCIÍ VO VÝUČBE EKONOMICKY ZAMERANÝCH
PREDMETOV NA STREDNÝCH ŠKOLÁCH

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Abstract

The aim of the paper is to analyze current innovation trends and teaching methods in the teaching of economically oriented subjects at secondary schools, as well as to support mathematical and statistical methods for the acquisition of a response to applied changes in the educational process. Correlational analysis is one of the methods of interference statistics, which is currently one of the advanced mathematical and statistical methods for evaluating empirical research as well as applied innovation trends in the teaching of economic subjects teachers at secondary schools. By using interference statistics, teachers of economic subjects can evaluate the response - satisfaction or dissatisfaction of students with content innovation and learning curricula.

Key words: Economic education, innovation processes, correlation analysis

Abstrakt

Cieľom príspevku je analýza aktuálnych inovačných trendov a vyučovacích metód vo výučbe ekonomicky zameraných predmetov na stredných školách aj s podporou matematicko-štatistických metód pre potreby získania odovzvy na aplikované zmeny v edukačnom procese.

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Korelačná analýza je jednou z metód interferenčnej štatistiky, ktorá v súčasnosti patrí medzi pokročilé matematicko-štatistické metódy pre vyhodnocovanie empirického výskumu aj oblasti aplikovaných inovačných trendov vo vzdelávaní učiteľov ekonomických predmetov na stredných školách. Použitím interferenčnej štatistiky môžu učitelia ekonomických predmetov hodnotiť odozvu - spokojnosť či nespokojnosť študentov s inováciou obsahu a foriém vzdelávania vo výučbe.

Kľúčové slová: ekonomické vzdelávanie, inovačné procesy, korelačná analýza

Introduction

Economic educational system as well as the entire school system are waiting for a number of changes. We know that at the time of the information society, where the explosion of information raises the fundamental contradiction between the limited capacity of the human mind and the increasing amount of information that the pupil should absorb, the school ceases to be their major and only source (Obdržálek, 2004, Anonym, 2013).

The economic educational system is becoming increasingly important in today's world. Basic *economic knowledge* and understanding of social phenomena and processes from an economic point of view are becoming an essential part of every secondary-educated human. At present the elements of economic education and training can be found at all levels of school system (Hromada, 2006; Arbe, 2010; Dvořáková, 2011; Hagarová et al., 2015).

We all know that the European Council at its meeting in Lisbon set itself an ambitious strategic goal for the EU: to become by 2016 the most competitive and the most dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion. In order to meet this ambitious objective, the process of modernization of education and professional economic education is inevitable. Education thus became one of the main priorities of the European Union.

The aim of the paper is to analyze current innovation trends and teaching methods in the teaching of economically oriented subjects at secondary schools, as well as to support mathematical and statistical methods for the acquisition of a response to applied changes in the educational process.

Current innovative trends in teaching economic subjects to increase economic literacy

The present economic education is a process that allows pupils to gain system of knowledge of the economic and related disciplines and economic practice and associated cognitive and practical knowledge and skills, or even some habits (Petty, 2008; Arbe, 2010; Dvořáková, 2011).

The acquired knowledge, skills and habits in economic subjects form the economic education of pupils. Education in economic subjects uses mainly instructional content to a targeted and deliberate influence on the pupils, so that it develops their positive qualities in practice, by which these also contribute to the development needs of society. A major current trend in the objectives and processes of education is formulating key competencies for life of the individual in contemporary society. The importance have such skills that go beyond the individual professions, and not only in their own areas of expertise, but in the general competences habits (Harausová, 2001; Dvořáková, 2011; Hagara et al. 2015).

Innovations are progressing to the forefront instead of the routine activities and tasks. A new trend in the selection of staff is crossing the traditional view based on the opinion that organizations should specify requirements as closely as possible and search for individuals who meet these requirements. The practice is such that a company prefers an employee who is adaptable at work and is able to work in a particular environment (Ružinská et al., 2012a,b and 2014; Hagara et al. 2015, Šlosár, 2009).

New, modern and rational innovative teaching of economic subjects also means developing a learning culture, strengthening the overall connectivity of theory with practice, so that the very learning becomes more attractive. We should use new active methods to strengthen and support the need to learn throughout life (Arbe, 2010, Dvořáková, 2011; Obdržálek, 2004, Žáčok, 2013, Ružinská et al. 2014; Hagarová et al., 2015; Paľun et al. 2015; Vargová and Kučerka, 2017).

The teaching of economics subjects in secondary schools and business academy in Slovakia

Common educational standards define the subject matter for all fields of study in a given level of education regardless of their future profiles. They help pupils in choosing their further professional and educational orientation, when entering the labor market and in the exercise of labor rights. One of the basic objectives of this education is to prepare such a graduate who not only has a professional profile, but who thanks to it can also successfully assert himself in the labor market and in life (Petty, 2008; Arbe, 2010; Dvořáková, 2011; Anonym, 2013).

Performance standards for the graduate of economic education: the subject matter is defined jointly for all fields of study on a given level of education regardless of their specialization, it will help the learners to decide on their further professional and educational orientation, when entering the labor market and in the exercise of labor rights (Šlosár, 2009; Arbe, 2010).

The graduates have to:

- Explain the basic concepts of labor law.
- Characterize the basic obligations of the employer and the employee after the establishment of the employment relationship.
- Elaborate a personal preparation for an interview in Slovak and a foreign language.
- Compare occupational offers on Slovak and European labor market and flexibly react to it by further training.
- Describe the basic rules of managing their own finances.
- Explain the nature of efficient use of financial information and financial services.
- Set realistic financial goals and plans to achieve them.
- Describe the risks associated with the management of their own finances.
- Characterize the consumer and the seller.
- Describe the procedure for handling complaints.
- Name which state authorities and organizations are dedicated to the protection of consumers.
- Describe the rights and obligations of consumers and define what is included in consumer protection.

- Apply knowledge of economics and business management and basic means of achieving business goals.
- Describe the methods of composition of a business plan, and business development plan in conditions of market economy.
- Explain how to use economic knowledge in private life.
- Characterize basic features of the legal forms of entrepreneurship.
- Assess appropriate forms of business in their field.

Content standards for Economy

Content standard is focused on the explanation of basic macroeconomic concepts and categories, economic laws and types of economic laws and types of economic systems, on the operation of the market and the market mechanism. It describes the national economy and its structure, explaining the economic cycle and macroeconomic outputs, shall inform the pupils with methods of calculation of macroeconomic outputs. It describes the basic stages of the economic cycle (Hagarová et al., 2015).

The causes, manifestations and consequences of cyclical economic developments. Introduces students to the basic macroeconomic aspects of money and its role in the market economy. Pupils gain knowledge about the nature, subjects, objectives and instruments of economic policy of the state, the economic role of the state. They broaden their knowledge in the field of world economy, international economic cooperation, international economic relations and global issues (Anonym, 2013).

Content standards for Economics

The content standard is aimed to achieve economic concepts and categories, to understand the relationships among them in business economics, in internal and foreign trade, in the payment system, customs, tax system, banking, insurance, in a financial market in marketing and management, in entrepreneurship. It describes the nature and components of enterprise, business forms, establishment and formation of a company, cancellation and termination of a company, supply, manufacture, marketing activities, staffing business activities, the economic aspect of business activities with a link to financial management (Anonym, 2013; Hagarová et al., 2015).

The activity of an enterprise is linked to the understanding of the nature and role of management and marketing in the control of the enterprise, also financial management of the enterprise includes knowledge of the tax system and the classification of taxes [8-10].

Furthermore, the content standard administers characteristics of commerce and points out the common and different features of wholesale and retail trade, internal and external trade, deals with various forms of trade, with work processes in business, management of commercial enterprises, conditions and possibilities of trading with foreign countries, knowledge of commercial contracts and trade agreements (Šlosár, 2009; Arbe, 2010; Anonym, 2013).

The development of intellectual abilities in economic subjects for effective and innovate education

Creativity is in humans associated with intellectual abilities, because they can be further developed. They are the following skills: fluency, flexibility, originality, sensitivity, elaboration and redefinition. We can develop the abovementioned abilities of pupils in different subjects, thus also when teaching economic subjects. For illustration, we provide simple examples of teaching methods of development of individual intellectual abilities in *Economics* (Hagara et al., 2015; Hagarová et al., 2015).

Fluency – presents the quantity and richness of ideas, concepts, symbols, readiness to generate ideas. There are four components: word fluency, association fluency, verbal fluency and fluency of thought. This method is used on revision lessons after finishing certain thematic units. The aim of the task is to produce as much information from the subject matter that pupils remember as possible. The method can also be used at the beginning of a subject matter to find out as many words that pupils know and mastered about the subject as they can. Apart from the development of fluency, pupils can also develop competencies: professional language, business skills and they learn to select acquired knowledge (Ružinská et al., 2014).

The task: within four minutes write as many words as you can from the field of business beginning with the letter P.

The possible solution: payment, product, policy, penalties, plan, prognosis, etc.

Evaluation and grading: The teacher knows how many technical terms beginning with the letter P a student can produce. A grading table can be created according to this knowledge. E.g. if there is the possibility to find the maximum of 20 technical terms - pupil gets 1, if 15 terms – 2, if 10 terms - 3, if 5 terms – 4.

Flexibility – the ability to adapt to changing conditions. We distinguish: spontaneous and adaptive flexibility.

The teaching method: Production of meanings

The aim: to produce as many meanings associated with the selected object as possible. The method can be used during revision lessons to develop flexible thinking. Tasks for flexibility have to be formulated from the covered subject matter.

The task: within 5 minutes write the greatest number of uses of a kilogram of wheat grains. Sort the individual uses into groups so that each group presents a different use.

The possible solution:

1. group: flour, whole wheat bread, for sprouting for a healthy diet, the food for rodents, the poultry feed;
2. group: the food for people, the poultry feed, for playing, for sowing, a plant in an apartment;
3. group: as a toy, as a weight, as a decoration, for the manufacture of chewing gums, as a poison for rodents.

After the job, we analyse, which group is the best in terms of flexibility and we state the reasons why. In the given examples of possible solutions, it is group no. 3, because each use of the wheat grains can be used for a different purpose.

Originality – It is the ability to find new, unconventional solutions and answers that are based on remote associations. Solutions can be funny and imaginative.

The teaching method: Finding answers, formulation of a name.

The aim: formulate sentences that originally solve a given problem.

The method can be used at the beginning of a teaching unit to motivate pupils during five minutes. The content of individual questions should correspond to the topics covered.

The task: tell me what would happen if you paid by credit cards only.

Possible answers: wallets would cease to be manufactured. The time to pay would extend. Pickpockets would not have anything to steal.

Sensitivity (sensitivity to problems) – is the ability to see shortcomings in solutions.

The teaching method: asking questions, problem analysis.

The aim: to analyze the problem using the appropriate questions.

It can be used for revision lesson after certain thematic units. Using this method pupils develop sensibility and logical and analytical thinking

The task: tell me the shortcomings and problems associated with using your mobile phone.

Redefinition – is the ability to change the function of the object or its parts (the ability to produce transformations).

The teaching method: Change of the function of the object.

The aim: to change the function of the selected object.

This teaching method can be used at the beginning of the lesson to motivate students during 3 minutes.

The task: tell me which of these articles is best suited for writing: a ruler, potatoes, glasses, a lipstick, a broken pen. Justify your choice.

Elaboration – is the ability to guess, bring the idea to the end. We identify it by only outlining an action plan and the problem solver has to design all the steps and details to make the plan viable.

The teaching method: A problem task.

The aim: to develop a final solution to a given problem.

The method may be used for a revision lesson after the end of a particular thematic unit because this kind of specific problem task can be given as homework. Pupils also develop analytical and logical thinking.

The task: write all the steps that must be done by a businessman to obtain an operating loan.

Evaluation and grading: a pupil who has stated all the steps of obtaining the operating loan may be graded by mark 1(A).

Application of modern didactic teaching aids in the teaching of subjects in economics

Nowadays, interactive information and communication technologies are used in the process of education that mediate *economic subject* matter using multimedia teaching aids in the form of texts, images, audio and video (Petty, 2008; Arbe, 2010).

These teaching aids affect multiple senses (sight, hearing, touch) of the pupil and that happens together with its active and creative involvement into the educational process and not just by passive reception of information presented by teachers. There is new and attractive interface

between a pupil and multimedia teaching aid as in normal use of computers and peripheral equipment to its control such as a mouse, keyboard or joystick. If we create teaching aids, didactic equipment is used for the demonstration of subject-matter between students and the teaching aid. Didactic equipment is useful only if the actual teaching aids are designed with the focus on active and creative activity of pupils (Žáčok, 2013; Vargová and Kučerka, 2017). Didactics has been undergoing a major reform in the recent years, because computer technology allows us to use new methods of teaching based on the use of interactive resources when teaching economic subjects. Visualization gained ground and the quality and the chance to present a subject matter was increased. Learning thus acquired a brand new modern character. This trend is actually the whole point of the use of all equipment, computers and audiovisual equipment. We think that to master the use of didactic equipment in the teaching unit of economic subjects, teachers must adopt new educational and technical skills and competencies (in the area of computer literacy, digital literacy, pedagogical mastery, etc.). (Arbe, 2010; Žáčok, 2013; Ružinská et al., 2014; Vargová and Kučerka, 2017).

The specification of these competencies and the determination which of them are crucial to significantly contribute to the qualified use of relevant systems in the classroom still remain unanswered. Here are the most important:

- The use of means of didactic equipment (to be able to operate the internet, video projector, audiovisual equipment, PC, tablet, visualiser, multi-function styluses, voting systems, etc.) (Kozík, 2009).
- The choice of teaching materials (analysis of the educational program and the subject matter for suitability for the objectives of the curriculum and required students' performances with respect to age particularities) (Gazdíková, 2011).
- The creation of teaching materials for didactic equipment and its pedagogical evaluation - the ability to use multimedia technology in teaching (the use of basic software support, and other resources such as interactive Flash animations, templates, quizzes, movies and sounds, using of e-learning in the environment of Moodle) (Arbe, 2010).
- Monitoring the development of multimedia Technologies for example for interactive whiteboards (updates of software, additional resources, mapping the development of applications, the results of applications, getting informed about the possibilities of content creation, exchanges of experience, methods, tips, advice within the teaching community) (Blahová, 2007).

In developing the required competencies we should bear in mind that the main focus is not just the ability to create teaching aids but mainly the competencies that lead to the creativity of a teacher. All components of didactic equipment build on competencies in an appropriate way to select the methods, forms and means so as to maintain the activity and development of creativity of pupils. Teaching economic subjects in secondary schools has two aspects: informative (educational) and formative (training). Both sides form a whole (Hagara et al., 2015; Hagarová et al., 2015).

The general-educational function of economic subjects

Economic education helps an individual to engage in social life, develops his personality traits taking into account the individual and societal interests. It allows students to gain knowledge

of the basics of economic life of society and to gain awareness of the facts of the national economy in the international context of development. Economic knowledge helps us to get engaged in socially useful work and helps to orient oneself in the fundamental questions of economic life.

The professional-educational function of economic subjects

Vocational training of secondary school pupils is related to their preparation for certain professions in which they will be employed after graduating. Qualified economic employees need knowledge of economic subjects as executives in professional activities of an economic nature. This knowledge enables them to perform various operational functions and economic activities competently and expertly. Economic education is provided, in particular by business academies, secondary schools and vocational schools with economic focus.

The training function of economic subjects

A teacher of economic subjects comprehensively influences the personality development of pupils. Educational content of economic subjects is used for the purpose of comprehensive training of pupils. The development of vocational economic education and the new curricular policy should be designed so as to be able to implement demanding tasks related to our membership in the European Union and respond to the constant and rapid changes in the economy, the labor market and throughout society.

The inferential statistics as research and evaluated method in the teaching subjects in economics

In the correlation analysis, emphasis is placed on the strength of interrelationships to a greater extent than the examination of individual variables in relation to the cause - the consequence (impact) (Paľun et. al. 2015). Correlational analysis is one of the methods of interference statistics, which is currently one of the advanced mathematical and statistical methods for evaluating empirical research as well as applied innovation trends in the teaching of economic subjects teachers at secondary schools. By using interference statistics, teachers of economic subjects can evaluate the response - satisfaction or dissatisfaction of students with content innovation and learning curricula.

Some notes to correlation analysis:

- Inferential statistics allows us to verify the relationships defined in the hypothesis based on statistical coefficients and indicators. Firstly, the existence of a statistical relationship, we used *chi-square value*.
- If the value of by us calculated *chi square* is higher than the critical value of statistical tables to look up depending on the degree of freedom then there is a statistical dependence. However, this figure does not indicate the mutual strength between variables [2, 3].
- The second step is finding strength of interdependence. This force will be acknowledged by a *contingency factor*. If the coefficient of contingency takes the value 0-0.299, the power is weak, the value of 0.300 to 0.499 is interpreted as moderately strong dependence and higher value of 0.500 is interpreted as a strong statistical dependence.
- The third step is the value of significance, the ideal value is 0.000, for *critical significance*

0.5 it is 0.005.

- In the correlation analysis, emphasis is placed on the strength of interrelationships to a greater extent than the examination of individual variables in relation to the cause - the consequence (impact).
- Spearmanov's correlation coefficient can take values from - 1 to + 1, with -1 meaning indirect proportion, + 1 direct proportionality and 0 independence of variables.

Examples of inferential statistics by methods the correlation analysis for evaluating of effectiveness of teaching economics subjects with e-learning on the environment of Moodleselecterd business academy in Slovakia we can see in the Table 1.

		The use of didactic equipment and e-learning ...					Total
		1	2	3	4	5	
Gender of respondents	1*	66	0	0	0	0	66
	2*	0	9	4	21	10	44
Total		66	9	4	21	10	110

Table 1 - Gender of respondents - by the use of didactic equipments and e-learning to develop creativity in the lessons of the economy

Notes: gender of respondents: 1*-boys, 2* –girls;

Source: own

Table 2 gives an example of computed parameters of the correlation analysis - chi quadrate of the test in the assessment of the response of applied innovative forms and teaching methods for the needs of economic subjects in secondary schools.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	110.000	4	0.000
Likelihood Ratio	148.063	4	0.000
Contingency Coefficient	0.707	1	0.000
Pearson's R	0.899		
Spearman Correlation	0.963		

Table 2 - Chi-Square Test - Gender of respondents by the use of didactic equipments and e-learning to develop creativity in the lessons of the economy

Source: own

Interpretation:

- The calculated value of chi – square is 110.000, while the critical value in the table at $df=1$ is 9.483.
- Significance is 0.000.
- The value of contingency coefficient was 0.707, which can be interpreted as *a strong degree of statistical dependence.*

Result:

- As can be seen from our calculations, there is a significant statistical dependence between the variables.
- Interactive teaching materials should encourage pupils to gain active knowledge, therefore the aim of this work is to give pupils and teachers the abovementioned active function when working with didactic equipment.
- Teachers should inform one another on the use of didactic equipment (e-learning in the environment Moodle), although it appears that not many of them use it and they do not include the use of interactive whiteboards in long-term planning. However, this sometimes means choosing activities that aim to motivate students because they are entertaining and engaging, but they are inevitably linked to the curriculum or plans.

Conclusion

Economic education has growing importance in today's world. Basics of economic knowledge and understanding of social processes and phenomena from the economic point of view are becoming an essential part of the education of each secondary-educated man. The importance and position of economic knowledge in education is also reflected in the fact that the elements of economic education and training are included in all levels of education.

Economic education is a process that allows students to gain knowledge of the economic and related disciplines, economic practice and associated intellectual and practical knowledge, skills and habits. Acquired knowledge, skills and habits in economic subjects form the economic education of students.

Education in economic subjects mainly uses instructional content to a targeted and deliberate action on the pupils, so that in practice their positive qualities are developed, because these also contribute to the needs for the development of society.

By using interference statistics, teachers of economic subjects can evaluate the response - satisfaction or dissatisfaction of students with content innovation and learning curricula.

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