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CREATING AND EVALUATING OF VOCATIONAL TEACHING TEXT

TVORBA A VYHODNOTENIE ODBORNÉHO TEXTU

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Daniel Kučerka pôsobí na Vysokej škole technickej a ekonomickej v Českých Budějoviciach. Jeho profesijné zameranie je orientované na didaktiku technického vzdelávania, metodiku praktického vzdelávania v technicky orientovaných odboroch hlavne so zameraním na strojárské predmety stredných odborných škôl. Súčasne sa zameriava na riešenie problematiky integrovaných didaktických pracovísk pre učiteľov strojárskych predmetov. Eva Ružinská pôsobí ako docentka na Katedre ekonomiky na Vysokej škole technickej a ekonomickej v Českých Budějoviciach. Vo svojom výskume sa venuje problematike inovácií v oblasti ekonomického a technického vzdelávania, ako aj problematike financovania, manažmentu a marketingu vo vzdelávacích inštitúciách a vo výrobných podnikoch. Roman Hrmo pôsobí na Vysokej škole – DTI Dubnica n/V ako prorektor. Zaoberá sa didaktikou odborných technických predmetu a kvalitou školy. Publikuje v odborných časopisoch. Je hlavným organizátorom konferencie Schola. Monika Kučerková je stredoškolskou učiteľkou anglického, slovenského a ruského jazyka na SOŠE Trnava. Súčasne pôsobí ako externá pracovníčka katedry oborových didaktík hlavne v oblasti prekladania odborných textov, tlmočnickej a publikačnej činnosti

Daniel Kučerka acts as the Deputy Head of Department of fields didactic in the Institute of Technology and Business in České Budějovice. His professional focus is concentrated on didactics of technical education, the methodology of practical education in technical fields mainly focusing on engineering subjects of secondary school. Nowadays he focuses at solving the problems of integrated didactic workplaces for teachers of engineering subjects. He presents the results of his activities in domestic and foreign scientific conferences and his publication outputs are in domestic and foreign technical and pedagogical journals and magazines. Eva Ružinská acts as an associate prof. at the Institute of Technology and Business in České Budějovice. Her research activities are focused on innovation in economic

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Abstract

Didactic text also at the time of the progressive development of information technology has its irreplaceable role in the education process at all levels of educational institutions. It is the most reliable means of training and as Průcha (2009) mentions it works reliably in temperatures from -100°C to $+80^{\circ}\text{C}$ without any maintenance. Didactic teaching text is a text that is a part of a textbook. The paper describes the evaluation of the textbook by authors Kučerka D. - Kučerková M. : Professional textbooks in English for students of engineering branches. The subject of our research there was the creation of this didactic text, evaluation of the quality of this didactic text , evaluation of the measure of difficulty of this didactic text and determination of its readability. For the evaluation of the experiment we used Close test for secondary school students.

Key words: textbook, teaching resources, structure of textbook, pedagogical research

Abstrakt

Didaktický text aj v čase progresívneho rozvoja informačných technológií má nenahraditeľnú úlohu vo vzdelávacom procese na všetkých úrovniach vzdelávacích inštitúcií. Je to najspoľahlivejší prostriedok výučby a ako to uvádza Průcha (2009), spoľahlivo funguje pri teplotách od -100°C do $+80^{\circ}\text{C}$ bez akejkoľvek údržby. Didaktický učebný text je text, ktorý je súčasťou učebnice. Príspevok popisuje hodnotenie učebnice autormi Kučerka D. - Kučerková M.: Učebnice angličtiny pre študentov strojárskych odborov. Predmetom nášho výskumu bolo vytvorenie tohto didaktického textu, hodnotenie kvality tohto didaktického textu, hodnotenie miery obtiažnosti tohto didaktického textu a určenie jeho čitateľnosti. Na hodnotenie experimentu sme použili Close test pre stredoškóľákov.

Kľúčové slová: učebnica, vyučovacie prostriedky, štruktúra učebnice, pedagogický výskum

Introduction

In the pedagogical practice of English language teachers as well as teachers of professional training we have met with a number of textbooks whose structure have not corresponded to the curricula and teachers often chose the basic curriculum according to subjective criteria. Therefore there has happened that pupils have not had different output knowledge that negatively affect especially their secondary school- leaving valuation.

Upgrading the curricula of secondary schools introduced changes mainly in the fact that the curriculum of foreign languages are the same in all secondary schools. 1st year students have different professional entrance knowledge in foreign languages or in the worse

case they do not have any. This fact led us to the situation in order to in a subject of professional communication in English language for engineering branches there were in an appropriate way and as friendly as possible processed the matters which can be easily adopted and with which the graduates of secondary vocational schools of engineering and graduates of vocational secondary schools of engineering will meet in their practice.

Teaching text as a part of the material teaching equipment

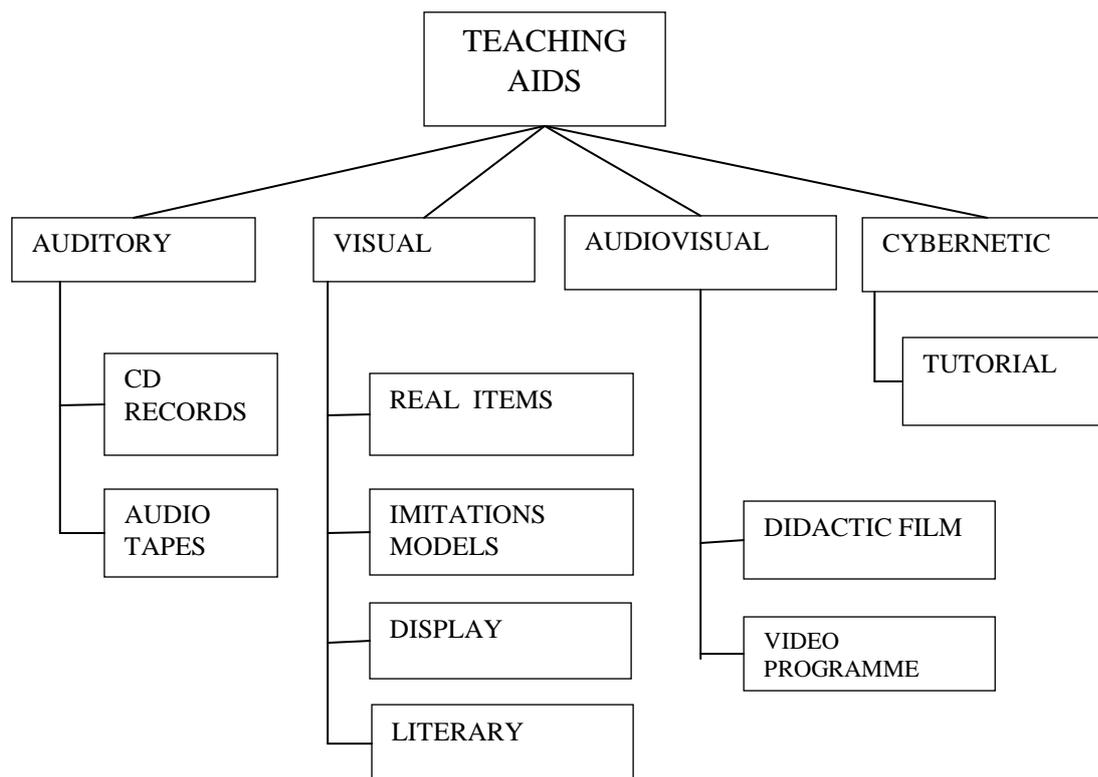
A textbook was created a long time ago. In the form of clay plates textbooks were used by Sumer already more than 6000 years ago. Until the invention of printing books were available only to a narrow circle of the elected people. As the founder of the theory of a textbook is considered J.A. Comenius who created the first illustrated textbook Orbispictus (World in Pictures). He formulated the theoretical basics of textbooks, many of which still have their meaning, for example the content of textbooks should be complete, thoroughly thought-out, processing of textbooks should be clear, precise and transparent, textbooks should be proportionate to abilities of students for each teaching.

Definition of teaching material resources

Teaching material means are means for achieving the educational process. Their place in the training system is strengthened by facilitating and in many cases also by conditioning the achievement of the objectives of the educational process. Teaching material resources belong to the category of teaching resources that are material and immaterial. Driensky, Hrmo (2004) and Hrmo et al. (2009) define the teaching material resources as all teaching aids and those technical means which carry out educational functions.

Teaching aids

Teaching aids (Pic. 1) are classified by many authors as the additive, visual, audiovisual and cybernetic. A method of making teaching aids depends on what function and role they have in education. Functions can be informational, transformation, activation, regulatory etc. Tasks can also be different. They can be motivating, description, application, demonstration, simulation, repetition, examination etc. ullamco laboris nisi ut aliquid ex ea commodi consequat.



Pic 1 Categorisation of teaching aids (Driensky, Hrmo, 2004 in Hrmo et al., 2009)

Creating teaching texts

A textbook is a part of the visual teaching aids. The term textbook means a didactic text (Turek, 2010) presenting the curriculum to be learned. According to Průcha (2009) a textbook is a kind of a book publication adjusted for didactic communication by its content, structure and features. The structure of a textbook (textbooks) must provide for students the clear curriculum content, which affects the structuring as well. Structuring of a textbook divides its content to particular parts. Vargová states (2007, p. 59) that "the textbook as a source of the content of students' education presents the content to be learned by a student. It also becomes the source of a text which should be learned by a student."

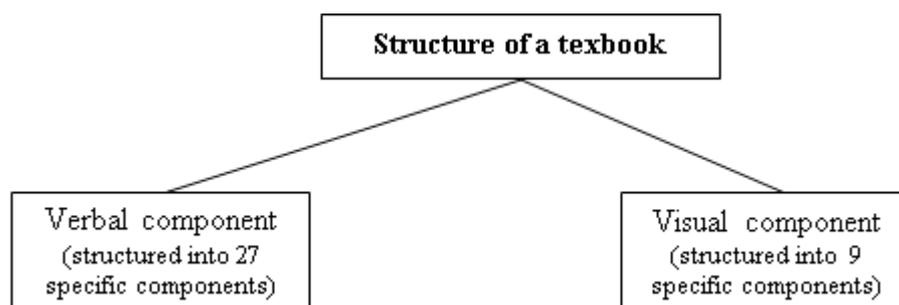
Teaching text according to Driensky (2007) belongs to a group of literary teaching aids. Here in addition to the teaching text are included also books, catalogues, tables and so on. According to the method of creating they can be made traditionally in printers or in electronic form.

For the research of textbooks abroad there are set up specialized research institutes (textbookresearch). Analysis of textbooks focuses on the structure of didactic text, its content, range, level, didactic equipment, the selection of textbooks by teachers and schools. In the Czech Republic (CR) after 1989 there have been developed in addition to standard textbooks also alternative textbooks. Czech textbook didactic parameters are detected by research analyzes, their number and methodological apparatus in recent years have been spread (Průcha et al., 2013).

Structural components and functions of textbooks

According to Průcha (2009) a structure is created by a set of partial components which are represented in varying degrees in every textbook. In summary, there is creating a system that determines the quality (didactic equipment) of a textbook and its ability to cause effects on a learning subject.

According to one taxonomy (Průcha, 1998) which was verified by many empirical researches, it is possible to represent the general model of the structure of a textbook - Pic. 2.



Pic. 2 Structure of textook (Průcha, 2009)

Structure of textbook

The structure of a textbook (textbooks) must provide for pupils and students the clear content of the curriculum, which also affects the structuring. Structuring of a textbook means its dividing into particular components. According to Turek (2010) a textbook which should fulfil all the functions, should have the following structure: content, introduction, chapters and subchapters, dealing with self-test and assessment of self-test results, overview of used variables and their units, selected tables, register and literature.

Writing a textbook

The quality textbook can be written only by a teacher who has experiences in teaching a particular subject, because writing requires didactic transformation of curriculum into the subjective logic of its adoption by pupils. It must comply with all the requirements for the production of a textbook and carry out all the functions of a textbook. Without the experience with the teaching of the relevant subject it is very difficult to observe the principle of proportionality. If a teacher has been making a written preparation for teaching for many years, he will make the most important part of the work needed for writing a good textbook. A good textbook is written in the form of processed record (currently a scenario) of a quality teaching process: specific - specific goals, motivation, interpretation of subject matter, its fixing, deepening and systematization and feedback as well. A teacher when writing a textbook in addition to his written preparation for teaching should study the literature (books and magazines), which is related to the subject.

When writing a textbook according to Turkek (1997) there should be followed the procedure: write an abstract, followed by the original, followed by incubation, and then a definitive treatment and a fair copy. When writing a fair copy it is important to respect the state standard STN ISO 690 (STN 010197).

Results and Discussion

In this paper the authors present an evaluation of the textbook Kučerka Daniel - Kučerková Monika: Professional textbooks in English for students of engineering branches. The subject of our research was the creation of the didactic text, evaluation of the quality of the didactic text, evaluation of the difficulty of the didactic texts and determining of the readability of the text. For the evaluation of our experiment we used Close test for students, we calculated the Fog index and the percentage of long and short words in the text. The research was conducted in three secondary schools in Slovakia (Trnava SOŠA, SOŠ Senec, SOŠE Trnava) and two secondary schools in the Czech Republic (SOŠSaEVešín a VOŠ, SPŠ a SOŠŘaS Strakonice).

The Fog index was calculated from randomly selected text in the textbook with a length of about 100 words. For the experiment we selected four samples, one sample of each lesson. During the calculating of the Fog index we counted the average number of words in a sentence in the text of selected samples and the percentage of long words (three and polysyllable) of the total number of word. The calculation was made by using the formula: where:

$$IZ = (PSV + \%DS) \cdot 0,4$$

IZ – FOG index

PSV - the average number of words in a sentence

DS - the percentage of long words (three and polysyllabic) of the total number of words

From the randomly selected texts 1-4 we obtained data for the calculation of the Fog index listed in Tables 1 and 2.

Text 1	Text 2
Average length of sentences 23,2% of long words in sentence 20,68	Average length of sentences 14,43% of long words in sentence 17,82
$IZ = (PSV + \%DS) \cdot 0,4$	$IZ = (PSV + \%DS) \cdot 0,4$
$IZ=(23,2+20,68) \times 0,4$	$IZ=(14,43+17,82) \times 0,4$
$IZ = 17,5$	$IZ = 12,9$

Tab. 1 Calculation of the Fog index for selected text 1 and 2

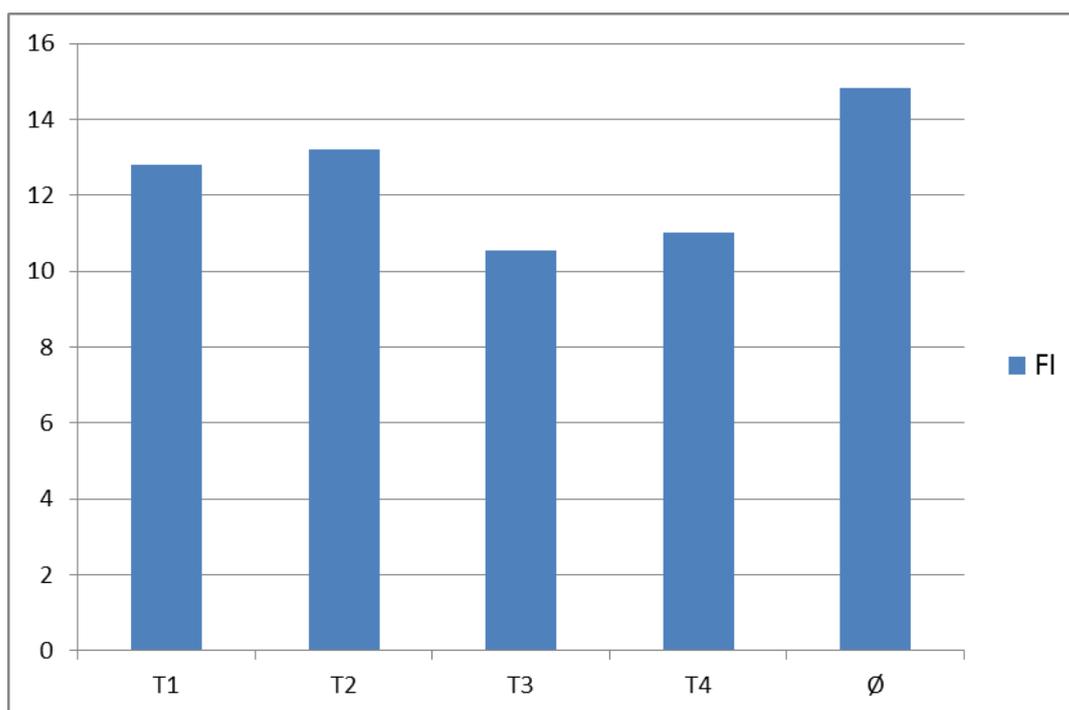
Text 3	Text 4
Average length of sentences 22,2 % of long words in sentence 25	Average length of sentences 11,2% of long words in sentence 15,49
$IZ = (PSV + \%DS) \cdot 0,4$	$IZ = (PSV + \%DS) \cdot 0,4$
$IZ= (22,2+25) \times 0,4$	$IZ= (11,2+15,49) \times 0,4$
$IZ = 18,88$	$IZ = 10,67$

Tab. 2 Calculation of Fog index for selected text 3 a 4

Table 3 summarized the results for the calculated average Fog index. Figure 1 shows the amount of Fog index for each of the selected texts and the total Fog index. The texts are shown on the axis y and the amount of Fog index is on the axis x.

Text	T1	T2	T3	T4	Ø
IZ	12,8	13,2	10,56	11	14,81

Tab. 3 Average Fog index



Graph 1 Total FOG index

The total Fog index (graph 1) calculated from four randomly selected texts is more than 13. The processed teaching text, as it is also shown in the other research results, is more difficult and can be managed by good senior year students. However, this teaching text is complementary, expanding students' knowledge and also gives them a good foundation for further study.

Conclusion

Schools provide education for each person in classical forms. Textbook as one form of acquiring knowledge enters in school education but also in further education. Education, obtaining new information is actual for young people, but also for people in older age. Their interest is mainly focused on high-quality scientific literature whether in print form but in electronic form too. E-learning requires quality control of computers, the Internet and communication through education technologies.

Didactic text supports the development of information literacy which includes the reading literacy as well. As part of training it is important to develop reading literacy from the entrance to the classroom. In the information society one of the very important capabilities is reading comprehension, which is the basis for self-study.

Research has shown that the created didactic text is challenging for a given target group and manageable with difficulties. Nevertheless, the authors believe that through this text students gain sufficient knowledge and skills which the graduates will be able to apply in their professional practice.

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