

DESIGNING OF THE ELECTRONIC EDUCATIONAL RESOURCES BY THE FUTURE TEACHER FOR THE MATH LESSONS AT ELEMENTARY SCHOOL

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Abstract

The topicality of the material is due to the problem of providing bulk process of primary school with electronic learning tools. The result of the study is an electronic textbook “The Electronic Clearness” created by students of the college under the guidance of the author of the article. The author describes in detail the technology of creating this electronic textbook designed by means of Adobe Flash. Thanks to the features of this textbook, the teacher gets more opportunities for full-fledged communication with pupils compared to classical clearness and other demonstration learning tools.

Keywords: mathematics, primary school, electronic clearness, electronic textbook, Adobe Flash, Adobe Photoshop.

Introduction

Using of information and communication technologies at Math lessons at the primary school, combined with traditional means of teaching, promotes increased interest in learning, its effectiveness, and the comprehensive development of the child. Activation of activity, increase of motivation of education is an important task of children's development at the primary school. This necessitates an increase in the level of readiness of future teachers, in particular to the design of electronic educational resources (EER). So, the development of new electronic teaching aids, in particular for teaching mathematics at the primary school, is based on modern computer technologies taking into account the existing pedagogical experience and the achievement of pedagogical sciences, are especially actual. Effectuation of this task depends on the full and effective use of computer skills in the education of junior pupils

Technology of planning of electronic educational resources

Let's consider the technology of the EER for example of creating an electronic textbook “The Electronic Clearness” by the students of the college.

The image of the title page of the electronic textbook “The Electronic Clearness” (Fig. 1)

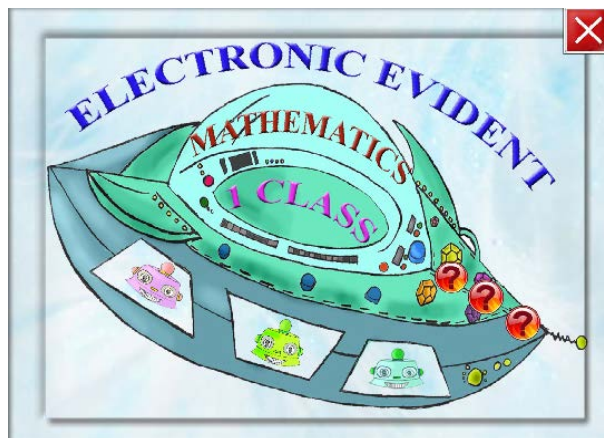


Fig. 1. The image of title electronic page of electronic educational text-book “Electronic Clearness”.

Work is carried out in following stages:

1. The goal definition of the EER (electronic educational resource). At this stage the students have defined the necessity of designing electronic resource for the usage in the educational process, the expediency of the making such author's software. The future teachers have defined the goal, pedagogical tasks, which can be solved by the EER. The main didactic functions, which must be realized in the planned EER, were defined by the students of the college. The future teachers take into account, that junior pupils have the visual-figurative thinking, that's why it is important to build their studying, involving to perception process the illustrative material as such as possible. If the training material is structured, presenting clearly, brightly, causes positive emotion, the attention of the junior pupil will become concentrated and durable [1]. The future teachers decided to create the electronic educational text-book "The Electronic Clearness" which is designed for usage at the Math lessons at the primary school during learning the topic "The First Dozen Numbers" by the pupils of primary school. Students used this manual during the trial lessons.

2. The selection of educational material. It is carried out according to the chosen theme and purpose of creation the EER. It is conducted according to the didactic requirements for learning material, criteria of novelty, completeness importance clearness [2]. The students decided to create the electronic text-book just for learning the topic "The First Dozen Numbers", since it is very important for the first year pupils, who have just come to school, to used the learning tools of studying at each lesson.

The future teachers decided to create the clearness to study the following topic in mathematics:

- Counting items.
- Number and number.
- Composition of numbers.
- Comparison the number within the limits of the given number
- Ordinal and quantitative counting.
- Acquainting with an action of addition and subtraction.
- Making up and solving the examples for adding and subtracting.
- Making up and solving the tasks for finding amount and remaining.
- Tasks for increasing and decreasing the number of several items.
- Tasks for comparison the differences.

3. Structuring and logical systematization of the training material. The main requirement for educational material - to be simple for the visualization [3]. At this stage it was fixed the list of the structural elements of the software, it was made concretized and generalized the educational information. The EER should not be overloaded by the secondary material, which leads to loss of the main idea. That's why it is necessary to choose the educational information avoiding the unnecessary sounds and excessive animation, which will distract the younger pupil's attention and avoid the big text items during of creating the EER. The future teacher should take into account methodical, ergonomic and aesthetics requirements to the EER.

Listed topics are learned at the 1-st semester (64 lessons) by the first year pupils, that's why the demonstrative material has been divided in three parts:

- "Clearness».
- "The comparison of numbers"
- "The composition of numbers"

The selection of the programmed means for development the EER. The programs' opportunities which will be used during the creating EER are analyzing. It should be distinguished between the software environments for development of the same components of EER and the tool environments for creating the integrated resources.

The Adobe Photoshop and Adobe Flash were used for creating the electronic educational resource "The Electronic Clearness". The students created the images with Adobe Photoshop, saving them at the transparent background. To do this choose the format *.png. The drawings were done by the first year students, because creating of the drawings takes much time. The software has been made by the third year students of primary education department with the usage of a system Adobe Flash.

4. The development of pedagogical scenario. It should be created and designed the needed elements at the basic of a didactic element – the components of electronic resource. To take into account the age characteristics of future users, we have corrected the structure of the future EER. This software tool should have the comfortable navigation, which must not contain the distract elements [4]. It was decided to create the educational material according to the chosen topics. It was decided to put the content of EER the following way:

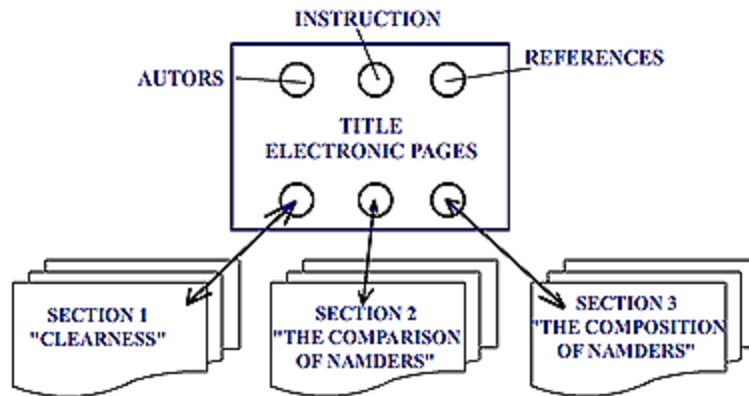


Fig. 2. The schematic image of the future electronic text-book.

5. The development of separate multimedia components. The profound filling and kind of the structural units of the EER are considered at this stage.

The future teachers have divided into three subgroups. The students of each subgroup worked with the creation of the EER to the suitable part.

The students of every subgroups have got the detailed instructions: at first it was grounded the course of executing the task and the final result with the explanatory-illustrative method using the multimedia projector and screen.

The future teachers decided to change the view of the planned electronic resource after discussing. Besides, the students have got the methodical recommendations, which they need to work on the plan with a step-by-step description of the implementation algorithm. It should be remembered, that not any object in Flash works by itself. It's necessary to create the specimens (buttons, textboxes "Static Text" and "Input Text") and to give each object a name and corresponding command the programming Action Script [5].

6. The work on design creation of electronic educational resource. The electronic educational resource's design is one of the most important for the elementary school pupils. It should encourage, and be attractive for the younger pupils, the main thing- is the design of EER should correspond to the educational purpose of this resource. Moreover, it should be remembered about the ergonomic demands in programming the EER's design [6]. The navigation should be simple, - minimum of the control's elements.

7. The technical incarnation of the project.

At this stage the projected beforehand objects should be arranged into united software. The arranging it's profound filling, creating the main control's elements, implementation of links between elements of resource, designing the design of electronic resource are happened. The link between elements is realized using embedded programming language of Action Script.

From the title electronic page of the electronic educational guide "Electronic Clearness" it may be transited into the main electronic pages first, second and third parts in accordance (fig. 3).

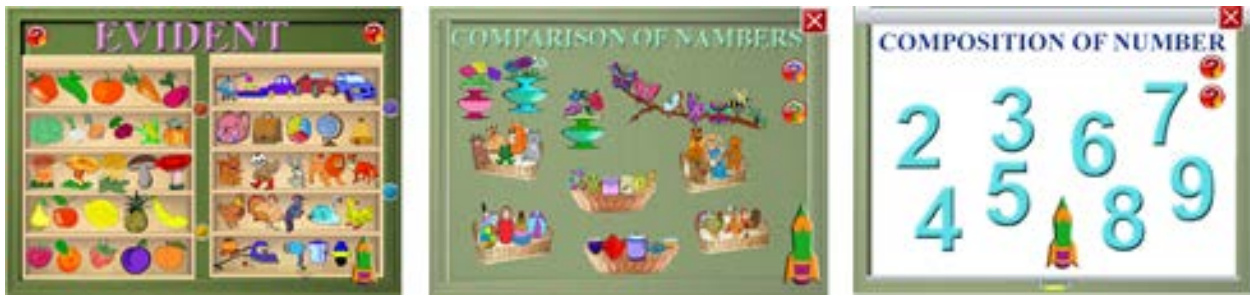


Fig. 3. The image of the main pages I, II and III sections.

Chose the part “Clearness”, the future teachers have the opportunity to work with the clearness and counting the chosen things within the limits at 10 or doing the preparing work to acquaint pupils with the addition action (fig. 4).



Fig. 4. The image of the fragments of the future teacher's work with the section “Clearness”.

The methods of working with the section “The Comparison of Numbers” may be analyzed using the picture. Comparison of numbers in the first class is based on the establishment of a one-to-one correspondence. On the «shelf», the teacher displays the corresponding images. The students first make a conclusion as whom are less: dogs or cats, and then determine their number and compare the numbers. (fig. 5).

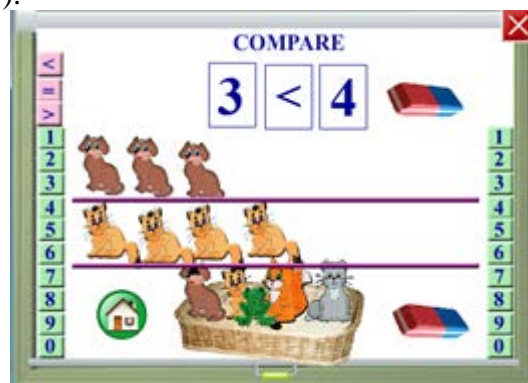


Fig. 5. The image of the fragments of the future teacher's work with the section “The comparison of numbers”.

Using the suitable number of the section “The Composition of the Numbers”, the future teacher transits to the learning the composition of the numbers by the pupils. Painting over the apples with various colors, you can determine which of the numbers is formed a number.

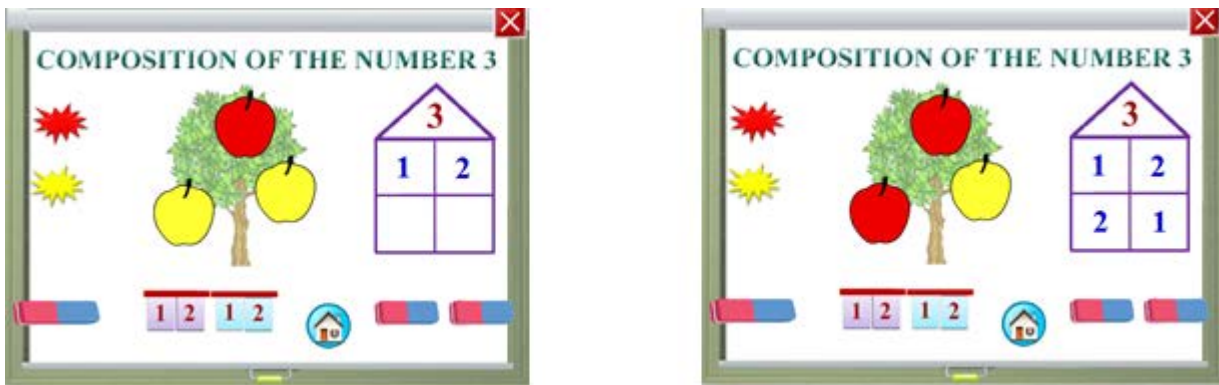


Fig. 6. The image of the fragments of the future teacher's work with the section "The composition of numbers".

Checking the work of the buttons, the future teachers create distributes with using Smart Install Marker.

The label is sated automatically at the desktop during the electronic educational guide's installation.

8. The testing stage. Practice shows, that there are the mistakes in the every created software. It is important to identify most of them at the testing stage of EER. It's necessary to exam how every object of the created EER works at this stage. The most importantly made sure that button's work is programmed right. The selected and posted educational content is looked through beforehand and is assessed by the correspondence of the requirements in the EER, that's presented to EER. The great attention is payed for the EER's design at this stage [7]. There are such disadvantages: defects, mistakes, unwanted situations, button's failures etc.

With the help of the navigation buttons it may by easy to more between the electronic pages and textbook's parts.

The navigation buttons of the electronic guide "Electronic Clearness"

9. The writing of the methodical recommendations for the electronic educational resource. The methodical recommendations to the EER should contain the information about the goal and the appointment of given resource, the structure of the EER, navigation buttons and their function. The recommendations about the learning the theoretical material by the math's textbook for the first class.

10. The testing of the EER at the math's lessons in the junior classes. Only the usage of the EER at the math in the junior classes pupils of the

Conclusions

The students of Pryluky humanitarian- pedagogical college were able to use this electronic manual while the conducting trial lessons in Math during the year in the first class and be ensure in the effectiveness of using this software tool in Math lessons at elementary school. The future teachers are convinced that the material of the text-book is available for pupils of the elementary classes. The usage of this electronic educational manual furthers the improving of studying process, allows not only to improve the quality of studying, but also to increase the cognitive interest of first- class pupils. The usage of interactive electronic clearness helps the future teachers to form the positive motives to studying for pupils of elementary classes, develops their creative abilities and promotes the mental activity of first-grades. The usage of the electronic clearness at Math lessons in elementary school allows the future teachers to observe the dynamics of mastering by the pupils of educational material, helps to realize the individual approach to the educational trajectory of each pupil, focuses attention on those questions, that are worse learned by pupils of this class.

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