

A self learning e-system for Greek paleography

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Abstract: - This paper presents an e-learning system, which aims to introduce the users in paleography, specifically in Greek pearlscript type paleography of the 19th to the 12th century, which is a representing sample of the Byzantine writing. It is aimed to scholars interested in paleography giving them fundamental knowledge. This e-learning system is available via Internet and as a cd-rom. It is the first e-learning system for the Greek paleography, with content taken from “The book of Jove” and provides interactive and multiform education. It consists a part of the D-Scribe Project, which is a complete program for the recording, manipulation, recognition and management of valuable Greek manuscripts.

Key-Words: - e-learning, paleography, transcription, interactive learning

1 Introduction

The Internet is a great technological revolution and has affected the whole planet in every aspect. Today we are talking for e-government [1,2], e-health [3,4] or e-commerce [5,6]. Of course education could not be an observer in this revolution. The e learning gives the opportunity to the user for distant learning through the Internet with means such as text, picture, audio and video. Many institutions, organizations, and companies have adopted these opportunities, which are available through the new technologies and the Internet. In some of the educational purposes that e learning is used is history [9,10], art [7,8] and literature [11].

Paleographic manuscripts are part of the three of them. The new technologies and the Internet consist the tools of the future, but they can also be the tools that will link us with the past and our cultural inheritance. For example, Hewlett-Packard and the Vatican began a project at 2001, that will give millions of people online access to the vast artistic and cultural heritage of the Apostolic Library, one of the most prestigious collections of manuscripts, documents and antique texts in the world [17]. Today somebody can find in the Internet a mass of e-learning applications, partly from universities, which aim at the education of the user in paleography, through the provision of content [12,13,14,15,16].

This content is a meeting point of the past and the future, providing historic content, taking advantage of the new technologies with an original and interactive educational way. It's founded on the

manuscript taken from “The book of Jove” and specifically the sinaiticus codex. It's based on self-learning method, whilst the content is adapted to the users level. It's constructed in such a way so it can be used in different stages, having apportioned the content according to the difficulty that it presents, and the same time offering to the user unique possibilities.

2 Structure of the E-Learning Environment

The system consists of the introductory note, the theory courses and the interactive courses, first and second type.

For the development of the user interface, the Java programming language is used, which gives to the platform many advantages. The program consists of bytecode and it can be executed from any operational system that has a Java interpreter. It is platform independent, in order to give access to the content for any user, either he uses it via Internet or via cdrom.

Another advantage is multithreading, that is the possibility for executing many processes at the same time.

Multithreading was a basic requirement, especially for the development of the paleographical keyboard, where there was the need for presentation and usage of images and, simultaneously data input from the user.

The evolved libraries, Swing and AWT(Abstract Window Toolkit), made possible in a window environment, the simultaneously presentation and usage of labels, buttons, text fields, and images for the development of the graphical user interface. Moreover, the constituents of the Java libraries are considered as lightweight, meaning that they are all written in Java, and therefore there aren't visible differences, at the speed of the applications, despite the use of dozens of images.



Fig.1. User levels

Furthermore, through the libraries that contain classes and interfaces for the support of text constituents, and through the ability given by the nature of Java, for selecting the desired font, came possible the use of the Greek polytonal system, by the content, and by the user for data input. That gives the system a unique innovation.

Using special methods for the text constituents, it was achieved comparison between the data given by the program, and the ones inputted by the user, by character, resulting to a more efficient education of the user.

2.1 User Levels

There are three kinds of user levels that can have access to different tools, depending on their access level (Fig.1).

2.1.1 Administrator

The administrator has access to all the tools of the system, and also can make changes. He is responsible for updating the system and the enrichment of the educational content, according to the structure of the content.

2.1.2 Authorized User

The authorized user has access in all the courses of the educational content.

The system provides him with the ability the type of course and the level of difficulty that he wishes to be educated in.

2.1.3 Unauthorized user

The unauthorized user has access to a demo version of the content. The system provides him with the ability, of choosing between the first and the second type of the interactive courses, where he can be educated in a small number of examples that they have been taken from the full version.

2.2 Content Structure

All the educational content follows a specific structure of consecutive difficulty levels, at the same time taking under consideration the gained experience, as well as the clarification of the constituents of paleography, from the user during the educational process.

At the first level courses, where used examples of paleographical words, that contain letters only, as the user for each letter has more than one selections, giving him the opportunity to understand which letters are used in specific words and in which cases.

At the second level courses where used examples of paleographical words, that contain letters and combinations of letters, ascending the difficulty level.

At the third level courses, where used examples of paleographical words, that contain letters, combinations of letters and the first type of abbreviations.

From the so far experience, the user can distinguish the letters, the combinations of letters and the cases that are used, and in this level he is simultaneously trained on abbreviations.

At the third level courses, where used examples of paleographical words, that contain letters, combinations of letters and two types of abbreviations, challenging the user to test and evaluate the total knowledge that he obtained from the educational content.

2.2.1 Theory Course

Entering this course the user comes across with the instructions that he has to follow.

He is given the opportunity to study and learn the spelling of paleographic words, through a large number of representative examples. There is a column containing the letters, the combinations of letters and the two types of abbreviations that are included in the educational content. For the each one of them, there are examples, where the user can learn the letters, the combinations of letters and two types of abbreviations are used in paleography. Many of the examples are common with the examples used in the interactive courses in order to make easier the education process of the user.

2.2.2 First Type Interactive Courses

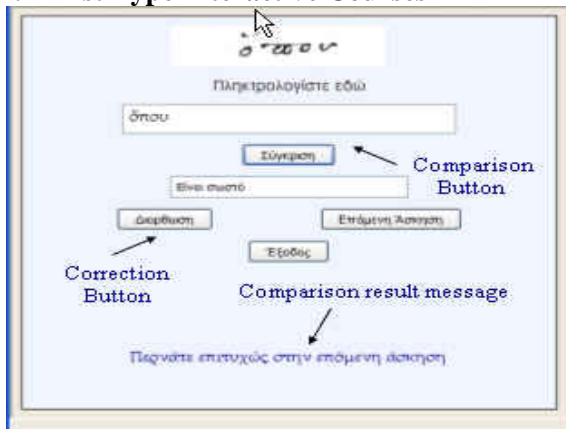


Fig.2. Sample of the first type interactive courses

Entering this course the user comes across with the instructions for this course, and the selections for the four difficulty level of the courses. By choosing one of the difficulty levels, the corresponding application appears (Fig.2). In this application the user is asked to transcribe the word the word given. The application gives the opportunity to the user to transcribe the word using Greek polytonal system (Fig.3).

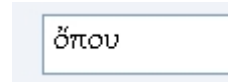


Fig.3. The use of Greek polytonal system

Then by pressing the “Comparison” button, the result of the comparison appears. If the word is transcribed correctly, a message appears saying “You passed successfully to the next example”. If the transcription is wrong, the correct transcription of the word appears, such as the word typed by the user and the equivalent errors character by character. Then if he wishes, he can press the button “Correction” and try to transcribe the word again. If he thinks that he is over with this example he can pass to the next one.

2.2.3 Second Type Interactive Courses

Entering this course the user comes across with the instructions for this course, and the selections for the four-difficulty level of the courses. By choosing one of the difficulty levels, the corresponding application appears (Fig.4).

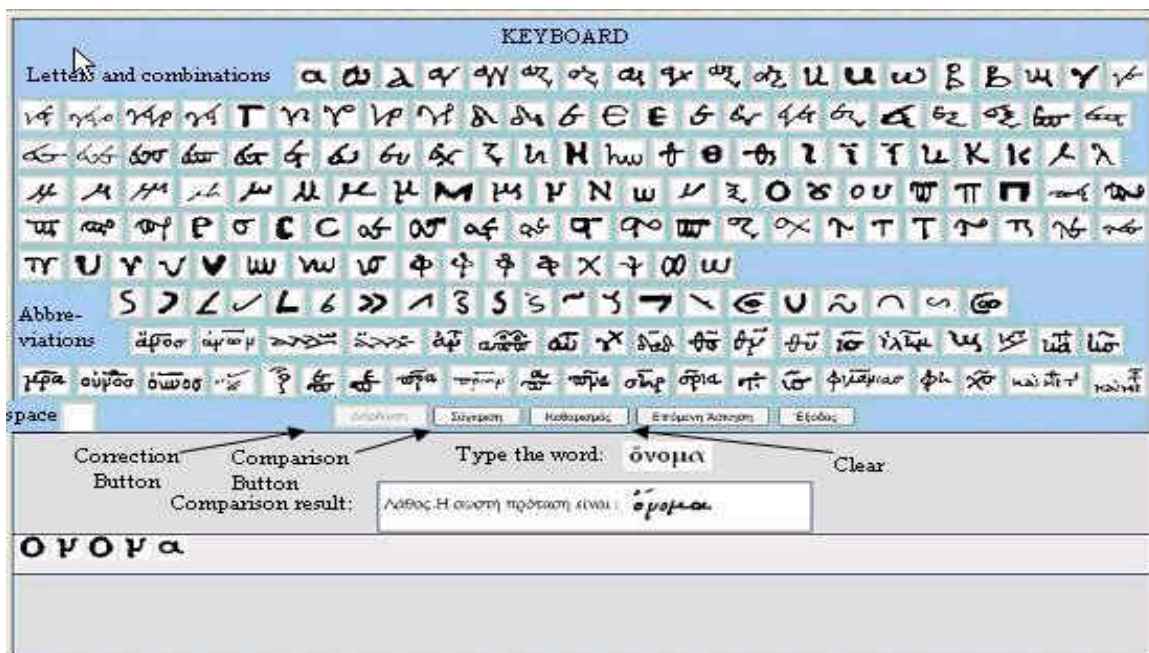


Fig.4. Sample of the second type interactive courses

In this application the user is asked to manuscript the transcribed word given by using the keyboard. If the manuscripted word is wrong, the user can erase the wrong letter-not the whole word- using the "Correction" button.

Then by pressing the "Comparison" button, the result of the comparison appears. If the word is manuscripted correctly, a message appears saying "Congratulations the word is correct". If the manuscription is wrong, the correct manuscription of the word appears, so as the user can locate his mistake. Then if he wishes, he can press the button "Clear" and try to manuscript the word again. If he thinks that he is over with this example he can pass to the next one.

Conclusion

The know-how and the infrastructure of the user's graphical interface, that was used for this content, concerning the Greek paleography, can be used for the development of a system concerning different types of paleography by just adapting the content to the wanted language. In this way, scholars interested in other types of paleography could have this interactive and unique educational chance.

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