M-Learning and Webquests: the new technologies as pedagogical resource

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This paper has as main goal bring to discussion new educative ways of using information and communication technologies, specifically the use of m-learning to access a webquest. We developed a webquest entitled "Learning with Plants" and it should be used in the Sciences classes in the 5th grade. The mobile devices allow students to access the webquest from the real world, joining theory to practice. Therefore, we believe in the advantages of using these mobile technologies in education.

(Portuguese abstract) Esta comunicação pretende trazer para a discussão novas formas de utilização educativa das tecnologias da informação e comunicação, neste caso o uso das tecnologias de m-learning para acesso a uma webquest. A webquest que desenvolvemos chama-se "Aprendendo com as Plantas" e a sua utilização deverá ser feita na disciplina de Ciências da Natureza do 5º ano de escolaridade. Os dispositivos móveis permitem o acesso dos alunos à webquest a partir do mundo real aliando-se assim a teoria com a prática. Defendemos desta forma uma das muitas possíveis vantagens da utilização de tecnologias móveis para fins educativos.

Keywords: M-learning; Webquests

1. Introduction and Goals

In this paper we will present the mobile devices, a technology that can be used in an educational context and known as PDA (Personal Digital Assistant), handheld Palmtop or Pocket PC. Their main characteristic is the mobility, which means they are devices that can be taken everywhere. These mobile devices have several functions and one of them is the access to the Internet. They can be defined as computer miniatures, because they have access and configurations similar to a normal computer.

The use of webquests in the educational context is very common in many schools and institutions and considering this option, we try to use the mobile devices to access webquests. We developed a webquest entitled "Learning with plants", whose content can be used in the sciences classes in the 5th grade and where students should perform their duties, joining them to practices in real world. We have created activities using the mobile devices, where students can access information and duties through the Internet and confirm the type of plants, leaves, stems, fruits and flowers founded in Nature, comparing the reality with virtual reality.

This study is intended to create mechanisms that allow students to learn even if they are not in the classroom. This issue is not new [1] the m-learning technology was used by students to explore a museum, where they had the possibility to see all pieces of art and search information about them in real time using the mobile devices. [2] "The m-learning researches have two major users groups: children and professionals of this area". Based on this idea, we developed a prototype from the connection of m-learning to webquests.

2. PDA´S and Mobile Learning

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The mobile devices technology appeared around the 90s. At first it was used as a resource to electronic notebooks and calculators, but with the development of powerful and smaller processors they were converted into small mobile computers. An example of these devices can be seen in picture 1.

Fig. 1 Examples of Mobile Devices

These are similar to normal computers, as far as Hardware (boards, memory and processor) or Software (programs and applications) are concerned. Specific software were developed for these devices, giving us the opportunity to perform the same activities such as accessing a text editor, an electronic table, a data base, the email and the Internet.

These devices have been used in several fields, such as industry, stores and laboratories, markets, on a daily basis and in education. The use of the mobile devices in education is called m-learning or mobile learning. [3] "When the mobile devices are used to facilitate the access to teaching programs, they are called Mobile Learning". In this format, numerous processing and data communication technologies mix up, leading to a greater interaction between students and teachers.

The advantages of these systems in education are several, if we consider that students can access updated information about several subjects everywhere in school, fast and easily, allowing the direct interaction with the teacher, who might be sending information or communicating in real time.

In a near future m-learning can become the most used system to access e-learning, because the expense when buying the mobile devices is less than when buying a PC or notebook.

3. Webquests

In 1995, the webquest concept appeared in San Diego University by Professor Bernard Dodge as a way to help teachers to use the Internet with creativity. [4] A webquest "is a guided research, where some or all information provided to students came from the Internet". This means it is an activity prepared by teachers, whose resources to solve the problems are in one place, in this case on the Internet.

Webquests only produce results, if they are planned with duties that can facilitate the learning process and value the research. Although the Internet is a success, it is also a disorganized access to information, because any person can publish texts freely, so not everything that is on the web is useful in education.

The cooperative work is one of the webquest principles, because it is intended to modify the individual use of the computer to a more cooperative one, where everyone cooperates with everyone in solving a problem. [4] "Webquests are based on the conviction that we learn more and better with other person and not alone. The more important learning comes from cooperation." The informal learning is also very common in a classroom and happens when students talk with each other. This learning is based on the confrontation between the ideas of the students, which leads to an unbalanced knowledge and then to a reflection. [5]"It is important to educate for autonomy, so each one can find its own learning rhythm and for cooperation, to learn in group, to change ideas, take part in projects and conducting researches together".

4. Identifying the Webquest

The webquest was entitled "Learning with Plants" and it's an activity that tries to identify the types of leaves, flowers, fruits and stems using the Internet. This theme belongs to the Sciences subject in the 5th grade and is classified as long term. The goal is to work on these activities in four classes. The webquest layout can be seen in picture 2.

Fig 2. Webquest layout: "learning with plants".

The students should use the mobile devices to access the webquest through the website http://paginas.terra.com.br/educacao/webquestplantas. If schools don't have mobile devices to conduct these activities, they can access this website through a normal computer and perform the same activities.

The developed webquest has one characteristic different from the normal webquests as it uses the mobile learning or m-learning technology, which is already been used in educational contexts through the mobile devices.

The school will provide one device for each group and they will use it for three things: access websites to search information, identify species and take pictures with the mobile devices. A scheme of this method can be seen in picture 2.
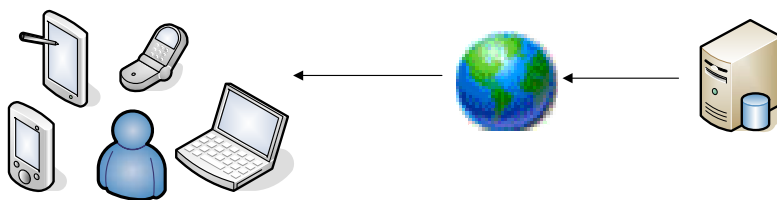

Fig. 2 Method of access.

The purpose of using the m-learning technology for webquests is to allow a bigger mobility than the one offered by personal computers, making possible for students to work cooperatively. They can take the devices next to the species that were found and compare theory with practice. In this activity the teachers play the role of guiders, supporting the groups in the search, in taking pictures and in the organization of posters.

The developed webquest when accessed through the mobile devices has a different layout from the one when the access is made through a browser, due to screen limitations and limitations in the devices. The information is the same; the only change is in the arrangement and size of the pictures. The image of this activity can be seen in fig 3.

Fig. 3. Webquest layout in mobile devices.

Screen limitations don't prevent the activities from happening, because the goal of the main duty is to place students in front of the objects, making teaching even more constructive, where students can learn through research.

This webquest has many advantages, because it facilitates the direct contact with plants once students own mobile devices capable of access information about the various types of plants. Instead of seeing the species in the screen, they can compare real plants and find their differences. Another positive factor is the cooperative work. Students need to be together all the time to develop their work by gathering information, identifying species, taking pictures and exhibiting posters.

5. Final Comments

The work introduced in this paper is a prototype of the use of the mobile devices in education (m-learning), a growing research field that begins to conduct experiences reported in literature.
In a near future, the m-learning technology will be highly implemented, due to its facility of access anytime and everywhere. A strong indicator of its success is the fast growth of the sales of the mobile phones, which include resources capable of access the Internet with an easy reading screen and folding keyboards that can be connected to these devices, making the writing easier. The advance of the wireless net will also make the mobile learning more available. The major aim of these technologies is to make teaching available anywhere and anytime.

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As the use of this technology and others "new technologies" is concerned, it is important to refer that nothing will succeed, if teachers don't commit themselves with the implementation of experiences, as the one described here. Therefore, it is necessary to prove them that there are options to profit from the technologies, in this case the mobile technologies that belong to the cultural universe of our students and that allow a full access anytime and anywhere. We believe that the m-learning, if well used, can facilitate the communication between those involved in the teaching-learning process. It can finish distances and bring to the classroom the reality as we saw in the example. [6] "Information and communication technologies aren't an educative tool to serve teachers and students…they are and belong to the world, where the young we teach grow up".

6. References

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