ANALYSIS AND DESIGN OF THE PORTAL OF WEBQUESTS IN PORTUGUESE LANGUAGE

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ABSTRACT

In this paper we present the whole process of analysis and implementation of an educational portal on WebQuests in Portuguese Language. The idealized portal was designed for schools and teachers, and was supposed to be a forum of sharing knowledge among Portuguese-speaking countries, thus, contributing for the dissemination to the community of the WebQuests that all Portuguese and Brazilian authors developed and used with their students. We show the stages of development and the layout of the portal, and some preliminary results obtained from a sample of environmental users.

KEYWORDS

Portals, WebQuests, TIC (Information and Communications Technology), Internet

1. INTRODUCTION

Our current students (digital natives), were born and developed in the digital age. For them, the phone, the computer, the Internet and cable are tools so common they are unable to live without them. "Today's students think and process information fundamentally differently from their predecessors." (Prensky, 2001, *Online*). Young people can learn through the vast amount of information that flows through the mass media and the Internet, and it is almost impossible to convince them to join the "gray school" (Morais and Paiva, 2006).

Another peculiar feature of this new generation is the ability to perform many tasks at once (multitasking), i. e., while they are watching TV they can also listen to a song, talk in a chat room, see photos and answer quickly and objectively to emails, and for them the different ways of communication and interaction with various media occur naturally.

We cannot think any more of education without remembering the technologies, the use of the Internet and educational resources as many of these resources are used in many schools. Moreover, the school is no longer the only place where one acquires the knowledge, because learning outside with interactive tools is attracting more and more our students (Bottentuit Junior, 2007).

This is a reality we want to encourage, in this sense, it was also the basis of the study we undertake: the design, evaluation and dissemination of a portal that provides the many existing WebQuests in Portuguese, so they can be searched based on pre-set criteria and later used in the classroom as well as being a safe space for consultation and exchange of information, articles and educational content from the Portuguese and Brazilian teachers.

Why investigate the issue of **WebQuests**? For we believe that a WebQuest is an innovative strategy, which allows learning so enjoyable and participatory that takes advantage of the educational potential of the computer and the Internet, where the construction of knowledge takes place by dynamic integration of the contribution of each of the students in a collective whole, in which the sum of the whole is greater than the parts. According to Dodge (1995: *online*), "the WebQuests are based on the belief that we learn better and more with others, not individually. More significant learning is the outcome of acts of cooperation."

On the other hand, and as referred by Costa and Carvalho (2006), using the WebQuest in daily teaching practices is a structured way for teachers to provide students' integration into the Information Society, helping them fight info-exclusion. Martins (2007) states that the WebQuest provides the integration of technology into a constructivist perspective in which students are active agents of their learning process, and

becoming an analytic and interactive manufacturer of their own knowledge. Indeed, to conduct collaborative activities proposed in the WebQuest, students need to consult resources, being most of them available on the Internet (which were previously selected by the teacher). These resources must be consistent with the objectives, with the nature of the proposed tasks and, of course, with the age level of students participating in the activity.

In a way, we can say that the WebQuest appeared to give educational utility to the multitude of content pages that exist on the Internet (Lipscomb, 2003). For Bottentuit Junior, Coutinho & Alexander (2006), the WebQuests only produce positive results if well planned with tasks that emphasize the research and, in that sense, the choice of resources to include is a crucial aspect in the design of a WebQuest. We all know that the Internet is a system of easy access to information, where anyone can freely publish their texts, so not everything that is in the network is in fact useful and valid for education. These reasons justify the existence of the WebQuest and the role it can play in favour of the quality of the teaching and learning process.

In this sense came the idea of creating a portal of WebQuests. Why a **portal**? The creation of a portal for the empirical study is directly related to the versatility and capacity of this type of environment in regard to exchange and acquisition of information, access to information and ease on acquiring knowledge on specific issues. In fact, the quantity and variability of existing information on the Internet often makes it difficult to reach the desired information, i.e. as much robust search engines can be they cannot filter 100% of the existing information on the web.

The situation is deteriorating due to the growing number of sites on the Internet making it necessary to create means that allow its location and identification. In this way, the search engines are born to quickly obtain information on a wide range of issues. As the Internet is a free disseminator, which does not restrict the publication of good and bad content, it eventually becomes a very disorganized environment, consequently making one spend more time in search of accurate information and with no guarantee whatsoever of even finding it. The creation of portals emerged as a way to solve this problem, since it allows the gathering of great quantity of information and sites on certain issues, saving time and increasing the quality of the search for those seeking more specific information.

Under these principles, we have justified the reasons for the research that we carry out, whereas many WebQuests are available on the Internet, but there is not yet a portal bringing together the collection of strategies that are presented in Portuguese. We tried to design the portal (PWLP) so that teachers, students, parents and the community in general, investigate, consult and use the best WebQuests in their teaching activities. The objective was that good WebQuests cease to be "lost" in hyperspace and can be reused by other teachers and educators who want to do it. These strategies are considered as small learning objects that can and should be used and tested with different types of students and in different physical and geographical contexts, because only then can we accurately attest to its quality and technical education.

The idealized portal was destined for schools and teachers, and was suppose to be a forum of sharing knowledge among Portuguese-speaking countries, thus, contributing for all Portuguese and Brazilian authors to spread to the community the WebQuests that were developed and were used with their students. After the consolidation and dissemination on a larger scale, we hope that this space can still be opened and become useful for other Portuguese-speaking countries, such as Angola, Cape Verde, Guinea Bissau, Macau, Mozambique, São Tome and Principe, and East Timor.

2. EDUCATIONAL PORTALS

Today we can find on the Web a variety of educational portals some more general, others more specific, although many of them do not meet the attributes that should be the hallmark of a true educational portal. In fact, many are up in simple repositories of sites. According to Sampaio and Nascimento (2009: p.1368):

Given the need for teachers to research, develop and share educational content and resources combined with the advantages of technology to this work and individual and collective development, there has been a growing demand and development of educational portals.

An education portal should be able to provide a collaborative environment for the development, evaluation and sharing of educational materials and resources, which raises the immediate question of the quality of available content and the technical features of the system (Jafari & Sheehan, 2003). For Gonçalves (2002: page 137), the educational portals are:

The access to other educational websites which also offer Web environments that provide various services to educational communities (teachers, educators, students and families): information, data search engines, communication or collaborative tools, educational activities and training, catalogues or directories of teaching resources, support materials or other educational resources, entertainment or leisure, etc.

For Furtado (2004), the educational portals are important because they allow the integration of the Internet in the process of formal education, also combining open learning experiences as well as at distance. For Iahn (2002), the educational portal cannot be seen only as virtual environments, but environments of support and extension of schools in the teaching and learning process, describing them as developments of the conventional sites because they are sources of resources and varied information making them interesting for a very diverse audience. Ianh (2002: online) states that:

The educational portals should meet the needs of its visitors, either solving doubts, proposing ideas and innovative activities, as well as giving full attention to the quality of the content that is available and constantly updated.

In Ianh (2001, 2002), Gonçalves (2002), Barroso (2005), and Bottentuit Junior & Coutinho's (2008) point of view, the educational portals have as main target audience:

• Students who enter the portal to search, study, chat with other users online and even enjoy it as a constructive and oriented way;

• Teachers who seek a space to exchange experiences, do the outside classroom follow-up for their students, do a research on courses and advancements on education, and also search for materials to use in their classes;

• Schools that can provide information on their developed activities, their educational projects and other information they deem relevant;

• The visitors, who find in these environments a space to learn well and meet new realities and possibilities to use in their daily activities;

• Researchers and universities see these spaces as sources of research and objects of study to articles, theses and dissertations;

• Publishers that can disseminate their materials, books, magazines and school textbooks; and

• Other portals that can maintain exchanges in the mutual disclosure of their information and services.

However, there are many "fake" educational portals available on the web. Some could be classified as mere repositories of other sites, often without updated information with few or almost no services to offer to users and, in most cases, without any possibility of interaction with users/visitors.

For Marques (2001) & Gonçalves (2002), an educational portal for whatever purpose should provide the user with the following attributes in a structured way:

• Access to a wide range of content or web pages characterised by the variety of multimedia elements;

• Mechanisms that facilitate the search for internal or external contents;

• Generic services, including ways to communicate and to share ideas and experiences (email, chat, discussion forum, file transfer, and in some cases, video conference, share applications or files and the publication of contents;

• Specific services for teachers, students and their families, which include several educational resources, fun-learning contents and activities of legislation training, information filtering, school ideas and suggestions, and other information of educational interest.

As already mentioned, most educational portals fit in the category of vertical portals, and can also be categorized as to its management, as referred by Furtado (2004): Held by organizations involved in education and that are worth of its presence in the network to enlarge its activities and strengthen measures of educational marketing.

3. THE DEVELOPMENT STAGES OF THE PORTAL OF WEBQUESTS

The implementation of this portal was developed in 8 (eight) stages, which will reveal the state of the art of the subject under investigation for the design of a portal according to the needs of its potential users. These stages were composed of a series of activities and will subsequently be described in greater details:

1st Stage – Identification of the Problem and Design of the Project

- Identification of research problem: Lack of an Educational Portal dedicated to WebQuests in Portuguese, which is "active", allowing the communication and interaction between users;
    - Design of the project and research plan to be accomplished;
    - Bibliographic survey in the area of WebQuests, educational portals and online learning.

2nd Stage – Literature Review
- Literature review on the theories of learning and on learning models in the twenty-first century (connectivity, learning in social networks and in practice/virtual communities);
    - Literature review on the Internet, its tools and developed paradigms (Web 1.0 to Web 2.0);
    - Literature review on the usability and accessibility of virtual environments for the Web;
    - Literature review on WebQuests and educational portals.

3rd Stage – Preliminary studies (needs analysis)
    - Analysis of Web sites on the topic of WebQuests;
    - Study with the authors of WebQuests;
    - Analysis of Portuguese and Brazilian WebQuests available on the Web;
    - Design of a grid to evaluate educational portals;
    - Evaluation of Portuguese and Brazilian portals available online.

4th Stage – Design of the portal
    - Specification of the necessary requirements for the design of a portal of WebQuest;
    - Definition of the components to be displayed;
    - Definition of the structure, layout (graphics and aesthetic issues);
    - Collection of informational and educational material;
    - Interviews with teachers and researchers on WebQuests for the nurturing of the portal;
- Search or survey for WebQuests through areas of knowledge (Science, Biology History, Mathematics, Chemistry, Physics, Portuguese, English, Geography, Visual Education, etc.), through the research on search engines, projects and scientific papers, creating a database with these addresses;
- Conduct training actions on the topic of WebQuests in order to identify evaluators of quality of teaching strategy. The assessments collected along the sections of training served to nurture the Portal of WebQuests, with indications related to their positive and negative aspects as well as indications on how to use in the classroom;
- Survey of references, teaching experiences and users of the methodology WebQuest in Brazil and in Portugal.

5th Stage – Evaluation of the Usability of the Portal
    - Development of a test for the usability of the portal of WebQuests;
    - Evaluation of the usability and quality of the contents with potential users;
    - Evaluation of the usability and quality of the contents with experts;
    - Collecting data from users of the portal to complement the information offered.

6th Stage – Improvement of the Portal
    - Systematization of the main points to be improved/modified;
    - Realization of changes suggested by the evaluators in the evaluation process stated on the 5th stage.

7th Stage – Disclosure of the Portal
- Dissemination of the portal through educational sites, teachers, schools, events, blogs, publishers and other educational bodies;
- Request for collaborative applications for the survey of new WebQuests for the portal;
- Request for the participation of teachers, students and researchers with the purpose of creating a virtual community of interest on the topic of WebQuests;
- Dissemination of the results obtained in the implementing process of the portal in the scientific community, both in Brazil and in Portugal.

8th Stage – Analysis of the Content of the obtained information in the Portal
    - Analysis of the origin and volume of access over a period of time (eight months);
    - Analysis of the online surveys performed in the portal;
    - Analysis of the available forums on the portal;
    - Analysis of the comments on the available blog on the portal;
    - Analysis of the readers' opinions;
    - Analysis of the degree of satisfaction and quality of the provided material by users of the portal.

Once the accomplishment of the prior studies was finished, it was possible to identify a broad set of characteristics that need to be present in sites of the portal type. That is, regardless of their nature (vertical or horizontal) a portal should provide information, contents and tools of communication. It was possible to see that the majority of educational portals in Portuguese have good layout and good navigation, however, they lack on the question information and content available to its users. From the observation of these characteristics, it was possible to imagine a portal with a set of attributes capable of providing the variety of issues associated with the WebQuest concept.

Through this portal, we try to answer the shortcomings found in previous studies conducted on the topic of WebQuests. In the first study, we saw that it was important to design a space where users interested in this topic could find more information on: a) The concept and origin; b) The evolution of WebQuests; c) The tools for the design; d) The forms of evaluation; e) Other WebQuests already developed and implemented.

In the second preliminary study, we noted that the authors consider an educational portal about WebQuests a viable idea, which means a space to bring all those who have interest in disclosing their experiences as well as a step to building a virtual community on this theme.

Other concerns we had from the beginning relate to the idea of the conception of an environment of easy access, rich in information and contents with a layout that facilitates communication, enabling users to easily cover all the portal in a light and intuitive way.

In this regard, the development of the "Portal of WebQuests in Portuguese" was performed in 4 (four) distinct stages as we can see in Figure 1.

4. THE PORTAL OF WEBQUESTS

Thus, the first step to develop the prototype was to specify its purpose and objectives that this environment intended to achieve. In our case, we knew from the outset that the main theme would be "WebQuest.". We also established that the format of the environment would be the site with the shape and features of a portal, containing information, contents, services, and tools of communication. This environment has been planned for a target audience comprising students, parents, teachers, and interested users in knowing more about this subject or wishing to establish a communication with other interested individuals in this educational strategy based on the Web.

From these definitions, we could choose a number of attributes related to the main theme, and still construct the sections and items that could promote a better satisfaction of the potential users of the environment.

The Portal was entitled Educational Portal of the WebQuests in Portuguese and being accessible through the main address http://www.portalwebquest.net, or the secondary addresses http://www.portalwebquest.co, http://www.portalwebquest.com.br, http://www.iep.uminho.pt/tce2ecc. The range of secondary addresses allows greater ease of access to the portal by its users, and increases the options to reach the environment through the search engines.

The architecture and structure of the Portal of WebQuests is configured in the category "network" because it allows the user to navigate in all directions from any section of the portal.

The Portal of WebQuests considers the characteristics of both the left navigation and the navigation via triple column, because it uses the menu items on the left and also includes elements such as search tools and the guestbook in the right column. The visualisation of the contents of the portal is carried out in the middle column, as we can see in Figure 1.

Figure 1. Layout of the Portal of WebQuests in Portuguese

In addition to the characteristics already specified, the portal has 24 (twenty four) items on the menu that enables any user with an understanding of the strategy WebQuest, its forms of design and evaluation, a database composed of various WebQuests evaluated by teachers of multiple areas of knowledge, various articles and Master's thesis already implemented on this subject, communication tools such as the forum and the blog, plus a series of interviews and important resources for the implementation of WebQuests in the classroom.

4.1 Preliminary Results

When the Portal of WebQuests was available online, we offered users a small survey consisting of 8 (eight) questions of multiple choice and open type. The main purpose of this questionnaire was to survey questions about the prior knowledge of users on WebQuests, and some issues related to the impressions on the quality and usability of the portal, moreover, we were also interested on knowing which key issues that users would like to see improved or implemented in the environment.

In this sense, the results obtained so far show that 64% of users who responded to the survey were female and 36% male, while 42% ranged the age of 21 to 30, 30% were found between 31 and 40, and 28% between 41 and 50. Regarding the professional occupation, 28% were students, 61% were teachers and 11% researchers.

While questioning if they already knew the methodology WebQuest, 64% said yes while 36% said they did not know the strategy of education based on the web. On the general opinion on the portal of WebQuests, 65% replied that the site is very good, 23% considered it good, 6% regular and 6% insufficient.

One of the objectives of the portal is to offer users a range of information on WebQuests to facilitate the process of teaching and learning with the use of technology, in this context, we asked users what utilities that may be attached to the portal of WebQuests, and the majority of responses pointed to a space rich in contents and in important resources for the teacher and student. Some of the responses from users were:

"A repository of information and a space to hear the work of other teachers within the WebQuests." U7

"As the portal is a repository of WebQuests it is easy and useful for the teaching of some contents." U12

"An area of trade and socialization between teachers from different areas and places." U33

We further questioned about the other things that users would like to see available on the portal and the answers were very varied, among them we can mention: videos, more interviews with educators, places to host a WQ, Podcasts, sites that may possibly be used in new WebQuests, more published articles.

In the last question we asked users to point out some aspects they considered that could be improved, and most of them said they were satisfied with the environment or that they had nothing to point out. However, some suggested that more option tools should be introduced for the formatting of pages and more links to a wider variety of sites.

5. CONCLUDING REMARKS

Every portal, regardless of their specificity, should include different types of tools: information, communication, service, search, entertainment as well as help and support, although we consider that all (and each) can contribute, in a way, for the sustainability of spaces of communication to the educational community.

The portal of WebQuests in Portuguese is an area that fills a gap on this issue because so far there is no area that includes many aspects and attributes in a single space.

The portal was launched in May 2009 and, so far, according to the information available of the tool Webstats in the portal, this space has been already accessed 6,918 times and these visits came from 31 different countries, but the majority of users come from Portugal and Brazil, since the contents available in this environment is in Portuguese. However, we received visits from countries like Spain, Argentina, Peru, Venezuela, Uruguay, Mexico, United States of America, United Kingdom, Cape Verde, Mozambique, Costa Rica, Belgium, Irland etc.

Users of the site indicate that the environment is an important source of information for learning and exchanging ideas on the topic of WebQuests, they also pointed out important aspects that were included along the updates that are performed every 15 (fifteen) days. The portal is in an enrichment process, i.e. at each new update it becomes richer and more complete, because users send their materials, their WebQuests and mainly what they would like to see available in the environment.

We expect the portal to inspire other students, teachers and researchers to use this environment in their daily activities, because every day the Internet becomes richer and diversified, and the use of these resources to facilitate teaching and learning is a duty of all educators of the twenty-first century.

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