

THE CONCEPTION OF A RUBRIC TO EVALUATE EDUCATIONAL PORTALS ON THE WEB

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Abstract

As the ease of Internet access and the quantity of available information increases, it also increases the apprehension of the educators regarding the issues of credibility of the available contents on the sites, as well as the quality of its technical functionalities. Educational portals are developments of conventional sites. That is, they are resources and information sources concentrated on the same site, becoming interesting to a rather diversified public and having major potentialities to complement, at several levels, the teaching and learning processes. However, for such an important mission to be accomplished it is key that, in the development and maintenance process of an educational website, a series of requisites are to be accomplished in order to guarantee the quality of the available information, as well as the usability. As we were thinking on these issues we developed an analysis and evaluation grid for educational portals. This was made through the comparison of a set of criteria, which we have considered essential to guarantee the graphical quality and usability of an educational portal.

Keywords

Educational Portals, Usability, Internet

1. INTRODUCTION

Nowadays the Internet is a huge repository of contents in very different formats (text, audio, video and graphic animation). These contents are scattered on the web in multiple resources as sites, repositories, online data bases, encyclopaedias and also portals.

The amount and variability of the existing information on the Internet, means that some data gets left out of the searches and researches made by the users. The search engines, even the most robust, cannot track down in 100% the existing information on the web. The internet websites were created, aiming at, on one hand, gather a large amount of information and contents on a specific subject or theme, and on the other hand, help to create virtual communities of a large number of people who share the same interests and seek the same information. Portals can be intended towards several areas of knowledge or very diversified interest groups. Therefore we can find corporate portals, entertainment portals, child portals, games portals, political portals, educational portals, etc. Portals can also be classified based upon other variables like gender, ethnic group, culture, age, place, among many others. The nomenclature used to designate portals is very wide. It might occur terms like general portal, vertical portal, specialized portal lahn (2002).

The term "portal" can take on different meanings depending on the perspective. However, the only thing that does not change in these different perspectives is the philosophy that is a place, that serves as an entry for people and / or information flow, as it is described in Wikipedia (2007)

it is an Internet site that functions as a huge repository and distributor of several other sites or subsites in or out of its domain or subdomain of the company which runs the portal. In its most common structure, portals have a search engine, a set, at sometimes in a considerable number, of subordinated areas with its own contents, a news area, one or more forums and other services for communities generation and a directory. They can also include other types of contents. To design a portal it is advisable to use content management tools instead of traditional html editors. These resources help to concentrate work at a more abstract level, since some of the technological aspects are already automated.

The need to design portals is directly related to the access and exchange of information, obtaining data and knowledge acquirement of general and specific subjects. To Ângulo and Albertini (2000, apud Vieira Pacheco and Rodrigues, 2004) the portal's main functions are related with searches (information or contents), with communication and also with the electronic commerce.

At the educational level we can now find on the web a huge variety of educational portals, some more general and others more specific although many of them do not meet the attributes that should be hallmark of a true educational portal. In fact, more than just a repository site, an educational portal should be able to provide a collaborative environment for the development, evaluation and sharing of materials and educational resources which immediately raises the question of the quality of content of the technical features available in the system (Jafari & Sheehan, 2003). However, if on one hand we know that there is a solid research body on quality and confidence indicators of educative sites (Olsina, 1999, Carvalho; Simões & Silva, 2004; Amstel, 2004; Memória, 2005; Simões, 2005; Silva, 2006) the same does not happen in regard to educational portals. At this level we felt that it would be important to systematise the (few) available and scattered information on individual studies and to develop an instrument specifically dedicated to the analysis and evaluation of educational portal's quality.

It is in this context that we present this project. After determining what we understand by educational portal, we will present and justify the criteria that have sustained the design of an analysis grid capable of evaluate the quality of an educational portal on three essential aspects: general data, available information, contents and usability.

2. EDUCATIONAL PORTALS

Reynolds e Koulopoulos (1999) consider a portal as an information system centred on the user, integrating or communicating individual and team experiences, considering thus, the current patterns of knowledge based institutions.

Educational portals are evolutions of conventional sites. That is, they are resources and information sources that are concentrated in a single site, becoming interesting to a rather diversified public. According to Iahn (2001), educational portals are important:

- For **students** that enter the portal to research, study, communicate with other users online and even to have fun in a constructive and oriented way.
- For **teachers**, the portals came to offer an important place to exchange experiences, extra classroom overseeing of their students, courses and news on educational area, search for materials to make available in their classes.
- For **schools**, portals can make available access to the school page; offer participation in educational projects as well as making available information about what is happening on the educational area.
- For **visitors**, portals are environments where they can learn and get to know new realities and possibilities to be implemented on their daily activities.
- For **researchers** and universities, portals become research sources and objects of study for articles, thesis and dissertations.
- For **publishers** that can disclose their materials, books, magazines and school books.
- For other portals that can maintain interchange in mutual promotion of their information and services.

However there are many "false" educational portals on the web. Some could be classified as repositories for other sites, since they are mere spaces on the web where data from other sites can be stored. Usually, these sites do not provide updated information, offering few services and most of the times without any kind of interaction with the users.

The need to assess the quality and reliability of educational sites led, by extension, to the emergency of studies focusing specifically on the analysis of educational portals (Iahn, 2001, 2002; Rocha, 2003; Nunes & Santos, 2006). Starting from the contribute of these and other more generalist studies (Jacobson & Cohen, 1996; Edwards, 1998; Kapoun, 1998), we have selected a set of indicators that in

our point of view, should be necessarily integrated on a portal dedicated to education issues (see figure 1), as we now describe.

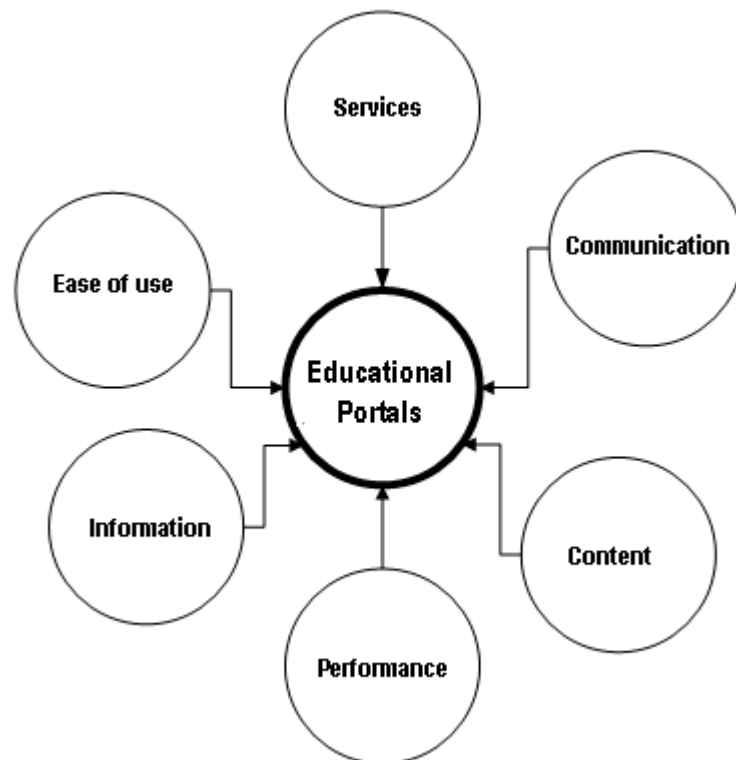


Figure 1: Quality indicators of an educational portal on the Internet.

- Ease of use: it must be of easy understanding, that is, the user should be autonomous and the icons and symbols should correspond to the offered services in order to facilitate its handling.
- Services: it must offer services as: FAQ (Frequently Asked Questions), Downloads for softwares that are needed to execute or visualise contents (plugins, PDF, video programs, etc).
- Communication: it must offer synchronous communication tools (chat) and asynchronous communication tools (forum, e-mail, newsletter, mailing list), for the communication between users and portal administrator, as well as among users.
- Content: as it is an educational portal, it should offer, necessarily, to its users, didactic contents and didactic resources at varied formats. That is it should have multimedia resources (text, images, sound, video and animation). This is undoubtedly one of the issues that should receive the greatest attention from portal administrators because, even with few services and with little usability is possible that a site succeeds (an example of this are the blogs).
- Performance: it should offer a satisfactory page and subpage loading time, that is, the user should not have a long waiting time to visualise the content. If we do not take this factor into account, the success of the site can be compromised.
- Information: as a basic feature a portal must offer, if possible, daily updated information and from reliable sources. This is one of the factors that can favour the portal user comeback.
- To take into account these quality issues in the educational portal construction and/or management is a condition for the portal success, leading to a larger flow of the site users and promoters.

3. THE DEVELOPED RUBRIC

The grid we have developed was centred on three main aspects, which even though being important, generate a series of questions: General Data, Information/ Content and Usability

The grid items development was inspired on several studies made in the quality sites measurement area, as well as in the analysis of educational portals, as referred previously (Jefrey, 1994, Olsina,

1999; Ianh, 2001, 2002; Rocha, 2003; Carvalho, Simões & Silva, 2004; Amstel, 2004; Memória, 2005; Simões, 2005; Silva, 2006; Nunes & Santos, 2006; Bottentuit Junior & Coutinho, 2007).

3.1 General Data

- Which is the portal's origin?
- Which type of access?
- Does it have the authors name and contact?
- How is the development/ maintenance team made up?
- Which target market?
- Which are the available communication tools?
- Does it allow improvement suggestions?
- Does it allow user registration?
- Is there any kind of advertising?
- Are there online inquiries?
- Are there visitor counters?

In the General Data category we have included a set of items that must always be present in the Portal, that is, features that make the portal identification and distinction easier comparatively to other existing educational portals and sites on the web.

The first item – portal origin – indicates to which country it belongs to or from which city is its feed made. To identify this item one must seek for any description, flag or, in some cases, we can even find this information near the date and hour.

Another very important aspect is the type of access, in fact, many portals are restrict, with contents that can only be accessed by someone who has a username and password. However, we can also find combined portals with both free and blocked areas. The type of access must be very clear in order to avoid the user wasting time going through areas he cannot access without a password. Ideally the portal should be fully opened or with the least possible number of blocked parts, so that it can have a greater number of users.

It is frequent to see sites and portals available on the web without reference to the author(s), as well as their contacts. As a result the users remain without a communication option with the author of the available information. The contacts must be placed in preference on the main page footer or at one of the menu items.

The development of sites, educational software as well as educational portals is usually of the responsibility of a multidisciplinary team. This team is capable of guaranteeing the portal's feed as well as managing its graphical and aesthetic issues. The information about the portal implementation and management team must always be available, if possible, at one of the portal items, which is many times designated by "credits".

As we referred previously in the theoretical part of this article there are portals dedicated to a varied type of target audience. On educational portals the public orientation must be well defined in order to avoid confusion by the user in the information access and localisation. In many of the available portals on the web we can observe a certain will to reach a wide audience. As a result, not all the portal areas are updated frequently. Ideally the home page should present a clear division of the addressees. Some use different background colours, others use "tabs" resources, among others.

As the educational sites need communication tools, portals also must have these interaction tools between users and administrators as well as between users and other visitors. Among the most used communication tools in portals we can point out the e-mail, forum, chat, newsletters, video conference, etc.

The users' opinion is always welcomed. The hints and the suggestions must always be considered, as they help to improve contents and even correct possible errors. This item must always appear in some way as visitor books or as opinion inquiries.

To know the number of the portal users we can use the counters. However, if we want to gain access to these peoples' contacts we must add an optional item that makes possible the contact - the users' registration. The inclusion of this item allows the creation of a data base for contact and/ or investigation.

Another optional item on the portals is the use of online advertising through the use of banners or small windows (pop ups), which are automatically opened during the loading of the different parts of the portal. Most of the times these are made by the companies, that sponsor the portal. The excessive use of advertising must be discouraged because it can cause the pages' visual pollution, and consequently the loss of users.

The online inquiries or "enquetes", as known in Brazil, are more and more used at the portals to obtain the visitor's opinion. Usually they assume the format of yes/no and agree/disagree questions. Despite being optional items they can constitute excellent tools to collect data and to supply feedback to the portal administrators.

The visitor counters are items that can be found in most of the sites and portals and are used to provide the visitor numbers. Some counters also identify the visit's origin as well as the most visited pages on the portal, supplying indicators that can be used either for statistics or to measure the content's quality of the available pages.

3.2 Information and Content

- Which kind of available information?
- What is the update frequency?
- Is there any data of the information sources?
- Does it have educative exercises/activities?
- Are there multimedia resources?
- Does it have pages with external hyperlinks?
- Does it have FAQ (Frequently Asked Questions)?
- Is there any kind of highlighting to the most relevant information?

In the category Information and Content we have selected some items, that should be present to facilitate the information and content understanding, that make an educational portal.

The information present on an educational portal can be varied, for instance: news in overall, events and conferences' calendar, articles for consulting and download, readers' opinion, interviews, didactic experiences of other educators, curricula contents among others. This information diversity must be updated, if possible, on a daily basis in order for the user to always come back looking for new information. However many portals choose to update their data weakly or even monthly.

The information published on the portals must always have the author's references, since many online articles are used daily as references for other scientific assignments. Without the author's identification it is impossible to trust and appraise the work of whoever writes and publishes.

Besides the information and contents, many users also seek for entertainment activities such as games and exercises, which can be presented in the most varied ways, as: quizzes, multiple choice exercises, crosswords, challenges, treasure hunt, curiosities, games, etc. The main purpose of this kind of activities is to examine the user's knowledge in an entertaining way.

The multimedia resources (sound, image, animation) are nowadays excellent tools to transmit information. Most of the sites and portals have multimedia resources, because they offer a pleasant aspect and facilitate the information understanding.

As it was referred on this article's introduction, the Internet is a repository of diverse contents; therefore, whenever possible a portal should refer to external pages. This is a much more practical way to take advantage of a good available content and not wasting time in the construction of new pages similar to the existing ones.

The term Frequently Asked Questions (FAQ) is present in several portals and sites. Its main purpose is to supply users with a series of answers to very frequent questions. This is an optional item, but very common among large portals and sites.

The portal's most relevant information should have a special emphasis in order to call the visitors' attention. There are several techniques that can be used to reach this purpose. The most common ones are the background colour or letter variation, as well as the use of bold or italic.

3.3 Usability

- Does the portal have a long loading time?
- How is the content organised?
- Does it use a type of letter without serif?
- Does it have an always visible menu?
- Does it allow internal search?
- Does it have a portal map?
- Does the text colour contrast with the background?
- Does the information occupy less than 100% of the screen width?
- Are there any broken links or figures that do not load?
- Does it present the path taken by the user?
- Does it have a standard page layout?

Usability is the ability, in human functional ways, of a system to be used easily and efficiently by the user (Shackel, 1993). To Scapin (1993) usability is directly connected to the Interface dialogue. It is the software's ability to allow the user to reach his interaction goals with the system.

Jacob Nielsen (1993) says that it is important to understand that usability is not a singular or a one-dimensional attribute of an interface with the users. Usability has multiple components and it is traditionally associated to five attributes:

- To be easily learnable: the system must allow an easy learning, so the user may rapidly interact with the system, learning its navigating options and the buttons' functionality. If the user is obliged to spend a lot of time learning how the portal works, he will not have the energy to assimilate the site content.
- To be efficient in its use: the system should be efficient, so that, when the user learns how the portal works, he can locate the information he seeks for, rapidly reaching high levels of productivity.
- To be easily remembered: the system should be easy to remember, so that the user may use it again after some inactive period, without having to learn everything again.
- Have few errors: the system error rate must be low, so that the users do not make many faults during their use and even if they do, they can easily recover what was lost. Irreversible errors must not occur.
- To be subjectively pleasant: the system should be pleasant in order for the users to be satisfied when using it. The users should enjoy using the portal.

It was thinking on these attributes that we have selected the most important items to integrate the analysis grid for the evaluation of educational portals' usability.

The sites and portals must have a minimum loading time, since users should not wait long to access the portal. When there is a long waiting time, users end up choosing other web addresses.

The portals can have different types of contents and these should be organised in such a way to facilitate the reading and comprehension. The more appropriate characters, in terms of usability, to read the contents published on portals and web documents, are those without serifs.

Portals may have different types of browsers and screen sizes, therefore sites should be designed to be visualised through any means. So, portals should not occupy 100% of the screen width, so all the users can access the site without losing any relevant information.

The menus are entrance doors to other portal pages and subpages, therefore, these should always be visible so that users can have access to the different areas from any place.

As portals grow in size they get more complex and with many more items, resources, information, contents, games, exercises, becoming sometimes hard to find the correct information within the portal. For this there are internal search systems that should be present at all times and be easy to find.

As well as we need maps to find certain places on the Internet, we also need site maps, since the information and contents volume in a site increases daily. In that sense, the tools that help us navigate and explore the desired information are fundamental.

The contrasting text and background colours are also very important items. If they are selected without any criteria they can compromise the reading and force the user to search for another site where he can obtain the same information in an easier and simpler way.

A serious usability error found in many sites and portals are the broken links or images that are not loaded when demanded, leading sometimes the pages to lose visitors as well as its credibility.

The path (Where am I?). Where have I been? Where can I go?) or bread crumb trail is an analogy to the story of Hansel and Gretel who left breadcrumbs on the paths walked through so they would not get lost (Memória, 2005). The advantage of this resource is to allow the user to jump to different information levels, speeding up the access and thus creating a pathway.

The pages' layout should be standard, i.e., the changes from one page to another should be centred on the information or its contents rather than its structure. For the messages that the site wishes to communicate, different layouts in different pages may work as a disturbing element of its reading and comprehension.

4. CONCLUSION

As the internet access becomes easier, as well as the amount of available information increases and to which all can have access to, so does the apprehension of the educators regarding the issues of credibility of the contents available on the sites and the quality of its technical functionalities. The available contents in traditional formats, as books and magazines, were submitted to strong filtration systems with very strict rules that determined and restrained the publishing. However, on the web, the ease of publishing is immense, but in return there is no set of rules capable of exercising some kind of control on the publishing and designing of internet pages that guarantee the quality and trustworthiness of the available information.

The main purpose of an educational portal is to be an entrance door to a wide source of educative resources and information, with potential to complement, effectively, the teaching and learning process. However, for this mission to be accomplished it is fundamental that, in the development and maintenance process of an educational portal, some requisites be fulfilled in order to guarantee the quality of the available contents, as well as its usability.

In this communication we have presented a grid which was developed with the purpose to evaluate the information, contents and usability of educational portals. For that we have made an extensive bibliographic research that sustained the consideration of three basic criteria that oriented the selection of the grid items: general data, information/ contents and usability. We hope that the developed grid may, in some way, sensitise the people responsible for the educative portals in general, to the need to establish quality criteria, allowing an improvement in the functionality and usefulness of the countless existing online portals.

References

- [1] Amstel, F. V. (2004). Design Centrado no Usuário para o Website da Universidade Federal do Paraná. Trabalho de Conclusão de Curso de Graduação em Jornalismo, Universidade Federal do Paraná. Curitiba
- [2] Angulo, M. J. & Albertin, A. L. (2000). Portais ou labirintos?. (Policopiado).
- [3] Bottentuit Junior, J.B. & Coutinho, C. P. (2007). Concepção de um Portal das WebQuests em Língua Portuguesa: análise de sites existentes e identificação das suas características. In Actas of the XVIII Simpósio Brasileiro de Informática na Educação (SBIE 2007). Universidade de São Paulo. São Paulo.
- [4] Carvalho, A. A. A.; Simões, A. & Silva, J. P. (2004). Indicadores de Qualidade e de Confiança de um Site. In M. P. Alves & E. A. Machado (Ed.) Actas das II Jornadas da Secção Portuguesa da ADMEE A avaliação e a validação das competências em contextos escolares e profissionais, Braga, Portugal: CIED, IEP.
- [5] Edwards, J. (1998). The Good, the Bad and The Useless: evaluating internet resources. Available at <http://www.ariadne.ac.uk/issue16/digital>, and accessed on 17.11.07.
- [6] Iahn, L. F. (2001). Portal Educacional: uma análise do seu papel para a educação virtual. Master's Degree Dissertation on Engenharia de Produção, especialização em Mídia e Conhecimento. Universidade Federal de Santa Catarina.
- [7] Iahn, L. F. (2002). Portais Educacionais: Uma realidade em evidência. Revista Aprender Virtual Vitoria - ES, v. 2 (1), p. 50 – 57.
- [8] Jacobson, T. & Cohen, L. (1996). Evaluating Internet Resources. Available at: <http://library.albany.edu/internet/evaluate.htm>. and accessed on 17/11/07.
- [9] Jafari, A. & Sheehan, M. (2003). Designing portals Opportunities and Challenges. Hershey, PA: Information Science Publishing.
- [10] Jeffrey, R. (1994). Handbook of Usability Testing: How to plan, design and conduct effective test. New York: John Wiley & Sons.
- [11] Kapoun, J. (1998). Evaluating Web Sites. Available at <http://www.Servece.oak.edu/~wittman/find/eval.htm>, and accessed on 17.11.07
- [12] Memória, F.(2005). Design para a Internet: projetando a experiência perfeita. Editora Campus.
- [13] Nielsen, J. (1993). Usability Engineering. New Jersey: Academic Press.
- [14] Nunes, S. C. & Santos, R. P. (2006). Análise pedagógica de portais educacionais conforme a teoria da aprendizagem significativa. Revista Novas Tecnologias na Educação, CINTED-UFRGS, v. 4 Nº 1, Julho, 2006 p.13-21. Porto Alegre. Available at: www.cinted.ufrgs.br/renote/jul2006/artigosrenote/a13_21149. Accessed on 10/11/2007
- [15] Olsina, L. A. (1999). Metodología cuantitativa para la evaluación y comparación de la calidad de sitios Web (Ph.D.). Not published, Universidad Nacional de La Plata, La Plata (Argentina). <http://gidis.ing.unlpam.edu.ar/home/personas/olsina.htm> (accessible on 22 nd Oct, 2003).
- [16] Reinolds, H. & Koulopoulos, T. (2004). Enterprise information portals. New York: Merrill Lynch, 16 Nov. 1998, abril 2000. Available at: <http://www.intelligententerprise.com/993003/feat1.shtml>. and accessed on: 2 mars.
- [17] Rocha, A. (2003). Qualidade dos Portais Web das Instituições Portuguesas do Ensino Superior: Avaliação Inicial. Actas do Challenges 2003 - III Conferência Internacional sobre Tecnologias de Informação e Comunicação na Educação/5º SIIE (Simpósio Internacional em Informática Educativa), Braga. Portugal.
- [18] Scapin, D. L. (1993). The need for Psycho-Engineering Approach to HCI. In Anais do 2º Congresso Brasileiro e 6º Seminário Brasileiro de Ergonomia, Florianópolis. ABERGO/FUNDACENTRO.
- [19] Shackel, B. (1993). Usability: context, framework, definition and evaluation. In Human Factors for Information Usability. Cambridge: Cambridge University Press, p. 21 - 37.
- [20] Silva, J. P. R. (2006). Análise dos Sites das Escolas Públicas com 2º Ciclo. Master's Degree Dissertation on Educação, Especialização em Tecnologia Educativa, Universidade do Minho.
- [21] Simões, A. (2005). Avaliação de sites de Matemática e implicações na prática docente. Master's Degree Dissertation on Educação, Especialização em Tecnologia Educativa, Universidade do Minho.
- [22] Vieira, E. M. F. ; Pacheco, R. C. & Rodrigues, R. S. (2004). O Enfoque Cognitivo e o Uso das Tecnologias de Informação em Situação de Limitação Sensorial. Cadernos Ebape/FGV, Rio de Janeiro, v. 2, n. 2, 2004.