

Studying Website-based Learning Environments

*In focus: Public Broadcasting Corporation, British Broadcasting Corporation,
Australian Broadcasting Corporation*

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Introduction

“Garbage in, garbage out.” This is a phrase commonly used by many to describe computers. Unfortunately, this may apply to the use of the World Wide Web (Web) as well. Students use the Web regularly for research and educators use it often to complement teaching. The rapid growth and popularity of this resource made it a medium difficult to ignore. Along with its popularity, the Web has also attracted a breed of online authors, editors, critics and “experts”. This group of contributors has no gatekeepers. They can cause the Web to be a risky resource. To become a prudent user of the Web, we have to assess its value. As a learner, we have to be careful what we “absorb” from the Web. As a contributor to the Web, we should ensure there is quality when designing web sites.

For this assignment, I selected three public broadcasting web sites. They are Public Broadcasting Services (PBS), British Broadcasting Corporation (BBC) and Australian Broadcasting Corporation (ABC). I chose these web sites because they are reputed for delivering quality services and I had wanted to learn from their proficiencies.

Content Quality

In general, the content quality of all the three sites is extremely high. This did not surprise me because I had known that national broadcasters produce quality work. In view of this, I was at a loss on how I should go about assessing the content component of these sites. Many literatures for assessing content worthiness had suggested using criteria such as “substance, depth, uniqueness, accuracy and currency” (Wittman, accessed April 17, 1999). Most of the elements in these frameworks seem redundant as the content in all of these sites meets these criteria well. For example, being national broadcasting organizations, they are committed to provide content that is current, accurate and impartial. Nonetheless, I surfed through a good number of the sites’ pages to confirm my assumption. I found them mostly well written and interesting. Moreover, they also collaborate with reputable institutions to co-produce some of this content.

In view of my limited evaluation criteria, I decided then to concentrate on the uniqueness and usefulness of the content to the learner or user. Although I have narrowed this exercise to reviewing the adult learning sites, the amount of content in these sites is still vast. I will therefore highlight content that is unique and discuss how they are presented in the sites.

Public Broadcasting Services (PBS)

The PBS “Adult Learning” segment contains two areas: the Adult Learning Service (ALS) and the Business Channel (BC). Under ALS, the user can select a resource and under BC, the user can pick a hot topic. When I first visited this site, I was a little disappointed because I had expected more in-depth content having browsed through the other two sites. The hot topics and resources are links to other courses.

What I found unique in this site is two sub-topics under ALS. The first one is called “PBS Ready to Earn”. This site aims to provide “young people and workers already on the job with the resources they need to develop workplace skills and pursue rewarding careers” (PBS, accessed April 22, 1999). It contains links to resources such as distance learning programs, computer-based training and adult literacy programs. What is worth mentioning is a page that helps “learners experience and understand the world of work” ((PBS, accessed April 22, 1999). It is one of my favorite pages. It gives an inside view of jobs and careers in various industries. The user selects the industry and a list of jobs is profiled. Each of them contains a short description (written with a light-hearted tone) and the skills for the position. On top of this, the learner can view a short video clip about the job. The content in this page may not be lengthy but it is effectively presented and useful to the learner.

The second helpful sub-area is the page on “PeerLit”. This is part of the resources from the “LiteracyLink” section. “PeerLit” provides links to educational web sites that have been reviewed. It explains that “there are many internet sites that can be used for learning and instruction, but not all of them are what we call educational web sites” ((PBS, accessed April 22, 1999). It lays out the components of an educational web site and gives definitions and examples for each of these components. I have done some research in this area and found the information provided to be one of the best.

The result of the review gives a title to the theme or subject matter (selected by the user), the URL, learning domains, a description of the site and a rating scale ranging from fair to excellent. The information is useful as it helps the user to preview each site with an educational perspective.

British Broadcasting Corporation (BBC)

My first reaction to the BBC site was, “wow, I can spend days looking through these content, there is so much to learn here!” Although I have heard so much about the BBC (partly because Singapore was a British colony), it never occurred to me to visit their web site—until now. I am glad I did.

Unlike PBS, BBC does not have a category on adult education per se but it has one titled “Education”. This category contains a broad area of subjects that ranges from history to health. For comparison purposes, I looked for content involving workplace skills. I picked the sections on “Further Education” (FE) and “Business and Training” (BT). I found these sites containing a lot more content than those in PBS did. The content has more depth and is targeted towards instruction. In the FE site, there are two sections, “Internet Assignments” and “Key Skills” that contain extensive learning material and exercises for the learner. For example, under “Internet Assignments”, topics range from learning about financial ratios to nursery nursing. Each of these topics has its own lesson. The “Key Skills” has three online exercises: communication skills, study skills and number skills. Each of these again lead to a variety of learning tasks.

The “Business and Training” site has a similar focus to the “Further Education” site. Both contain rich content on adult themes such as resume writing skills and interview techniques. Although PBS and BBC have some similar themes, there is a difference in style on how they present their content. For instance, BBC has a page called “Career Moves” which has similar content to one of PBS’ “Windows on work” page. BBC presents the content in a straight, “matter-of-fact” tone whereas PBS’ has a friendlier tone. BBC talks about the job while PBS talks to the user.

Australian Broadcasting Corporation (ABC)

ABC's education sites are put under their "Learn Online" category. However, they do not have any site that is specifically focused on adult learning. They have a "Professional Development" category but the site does not have much usable content. It has mainly information for their radio and TV programs.

In terms of content, ABC offers the least. Since I was not able to find a page comparable to the ones I looked at in PBS and BBC, I looked at some of ABC's other pages to review the content. I did find good content in general areas such as technology, science and Australian history. However, compared to PBS and BBC, ABC offers less. In general, what I found interesting was the number of language programs ABC has, they range from Greek to Mandarin, however, although each program has its web site, the site itself has no tangible content, only program information.

Summary

At a glance, it would seem that BBC has the strongest content. However, the content quality across the three sites is generally high. I am hesitant to discount ABC's "Net" worth just because it carries less content. I am inclined to think that each of these organizations has a different perspective on providing content online. PBS seems to aim at the practical aspect of the continuum, providing resources and content for the user's application. BBC on the other hand pours out the content freely and focuses more on instructional design. I am reminded in this instance of PBS using a constructivist approach while BBC using an objectivist approach. Given time, I believe ABC will catch up with PBS and BBC. After all, ABC online is the youngest of all the three sites.

Usability

One of my impressions as a user for these three sites is one of frustration. One may be surprised at my reaction, after all, these are well-designed sites. Indeed they are. However, because of the amount of information that these sites contain, a user often has to "dig" deep into the layers of pages with many clicks to find the desired information. I found myself muttering more than once, "I didn't realize they have this! Why didn't they move this to the higher levels? (frown)" Unless a user spends time "digging" around, it is easy to miss some of the good sites. Then again, having designed web pages myself, I realized that site management for these sites must have been a massive job.

Sometimes I equate surfing through these sites with being a new student at a university. There is a sense of disorientation. One knows there are lots of resources and knowledge around but discovering them can be a challenge. One needs good guides—easy-to-read maps, prominent signs, clear directions, strong recommendations or sound referrals. Applying this need to the online sites, a user similarly requires quality site maps, search engines, navigational signs, readable text and other prompters.

To compare the usability feature of PBS, BBC and ABC, I used the criteria of "good guides" mentioned above and compiled the results as follows:

Criteria	PBS	BBC	ABC	Comments
Time for page to download	Best of the three.	Not too bad. From experience, UK pages tend to take longer.	Not good. Most times I would have given up on it.	I am not sure if PBS being in the U.S. has an advantage here.
General appearance <ul style="list-style-type: none"> • Text • Graphics • Organization 	Tops again. Slick and crisp graphics. In general, easy-to-read layout. Size of text well used. <ul style="list-style-type: none"> → Only complaint is that some pages carry light colored fonts and it does not show well when printed. 	A close second. Effective use of space. Icons liven up categories and cut the monotony of text well. Animations are often poorly used but BBC does a superb job with them. <ul style="list-style-type: none"> → Some pages can use more graphics. 	Pleasing in general. Eye-catching entry pages to sub-topics. <ul style="list-style-type: none"> → Pages with content tend to be dull, can use more graphics in these pages. 	
Ease of navigation	Good. Each page has a link back to the home page.	Good.	Good but not as consistent as PBS and BBC.	I expected it but sometimes it takes too many clicks to get to where I wanted (applies to all).
Site map	A comprehensive map listing sites by categories. There is also another listing of sites arranged alphabetically.	The main site map uses categories but it is too simplified. Alpha listing available but requires another click to get to it. Not as efficient as it requires additional searching.	Organized in a graphical format. Easy to view but does not seem to give a complete map of all the sites.	It is difficult to say which site has the better map. Users with different levels of patience may critique otherwise.
Links	Reliable	Reliable	Reliable	I expected it.
Search capability	Most fancy. Besides the basic search, it also has a multimedia search for pictures, audio, etc. Links to help areas.	Simple and easy-to-use. Presented search in a three-step process. Links to tips and suggestions search help.	Simple search facility. Also gives an alpha listing of the ABC online sites. (I feel that this should be in the site map.)	Again, depends on user's preference. Personally, I like the BBC format.
Help facility	None in the top level.	Yes and has great information. Advises on areas like browsers, troubleshooting, navigation tips, help for new users, etc. Also has a glossary.	None in the top level.	I didn't think it was necessary at first but having read through the BBC help site, I changed my mind.

Pedagogy

It was a challenge to review and compare the pedagogy for these sites because firstly, they are not pure educational sites and secondly, their objectives vary. It was therefore difficult to make an equitable comparison. Nevertheless, I will still frame my comments around components used to study educational web sites. According to Bannan-Ritland and Milheim, “Designing any type of instruction involves determining the overall instructional approach, the theoretical or pedagogical basis for that approach, as well as the potential strategies or methods and corresponding instructional activities” (accessed February 23, 1999). For the scope of this paper, I will comment on PBS, BBC and ABC’s overall instructional approach and their instructional activities. Additionally, I would like to focus on the learning theories of imagery and “play”. The reason is because images are versatile and common agents of online learning and “play” is an effective form of engagement in web sites.

Instructional Approach

In general, PBS adopts a more constructivist approach whereas BBC or ABC approaches lean towards objectivism. PBS do not present information as chunks of content, instead, they encourage users to explore and use the given resources to construct their own applications . For example, in the adult learning sites, BBC posts content on skills for work but PBS posts resources, online forums and literacy skills to facilitate users own learning.

Instructional Activities

In addition to differences in pedagogy approach, PBS, BBC and ABC also vary in their instructional activities. I looked at how they apply images and “play” to stimulate learning.

Public Broadcasting Services (PBS)

Here is two clever usage of imagery to enhance learning and support memory processes in the “Teacher Resources” web pages. They are:

- “The Clickable Croc”
Various body parts are labeled on an image of a crocodile. Users are asked to “Click on this croc's parts to find the secrets behind its success as the top predator in the 'hood.”
<http://www.pbs.org/wgbh/nova/crocs/clickable/>
- “Desert Finds in the Lost City of Arabia”
A map of the world is displayed and users are asked to imagine themselves as archaeologists seeking the lost city of Arabia in the Rub al Khali Desert. Users are to find this desert on the map. <http://www.pbs.org/wgbh/nova/ubar/hotsceinceubar/index.html>

It was reported that “images are generally more evocative than words and more precise in triggering a wide range of associations, enhancing creative thinking and memory” (SIMA, accessed April 25, 1999). According to Levie and Lentz, “users prefer material which is illustrated and regard it as being of higher quality” (1982). I found PBS’ treatment of images a good application of these findings.

I did not find many incidences of significant “play” in this area. If trivial assessments are considered as “play”, PBS did incorporate questions and light-hearted answers. I noticed that they use the “play” component much more in their children’s sites. This is a pity because “play” can also impact adult learning considerably.

British Broadcasting Corporation (BBC)

At a glance, BBC adheres to more pedagogical and instructional design principles. For example, where applicable, BBC incorporates components such as lesson objectives, activities, learning outcomes and assessments in their learning pages. However, their choice of pedagogy approach in imagery and “play” differ from PBS.

There is minimum use of static imagery to support learning. Most of the learning pages use text as the main medium of instruction. Images are mainly used for aesthetics and to get the user’s attention. I find this difference in approach interesting. I have been exposed to both the British education system and the American education system and recognize the differences in emphasis. The British system tends to be theory oriented while the American system leans towards the application side of learning. Seeing this perspective translated online is interesting for me.

On the other hand, I found more evidence of “play” in the BBC’s learning structure. I found the following, fun ways to implement learning:

1. In their language sites, creative matching activities with topics such as food, family and shopping add novelty to learning. For example, a learner will try to match the time for dinner to the type of food in Italian. The sites do have images but they are used as links and fancy icons instead of learning tools. <http://www.bbc.co.uk/education/languages/italian/index.shtml>
2. In the lesson for “Marketing Beauty Care”, the learner is asked to access a cosmetic site, take the online skin test and comment on the accuracy of the test as well as the overall marketing strategy. <http://www.bbc.co.uk/education/fe/bized/beautyindex.shtml>

Seeing the frequent use of “games” for learning, the words of Bernie DeKoven, game designer and author of “The Well-Played Game”, came to my mind, “...when it comes to learning, play is not an accessory, but a partner.”

Australian Broadcasting Corporation (ABC)

ABC has very few learning sites. Most of the sites either complement their programs or they are informational sites. However, they have a science learning site, “The Holodek”, which uses gaming to facilitate learning.

Like BBC, ABC has limited use of static images to their learning pages. Nonetheless, one example worth mentioning is the use of an image as a practice tool. The image is a grid (like a piece of graph paper) and the user is asked to map out the replication of cell patterns on it. This image is not fancy or eye-catching but it is used effectively as a tool for learning. Although images are not often used here to assist visualization, it is used in most of their “games” in “The Holodek” site. Often, One or more images are used to facilitate “play” in this science site for users to learn a concept. For instance, the image of a group of butterflies is used as a setting for a user to understand the “Butterfly Effect” in weather prediction. The user is asked to click at random on any of the butterflies to see the “Butterfly Effect” in action.

<http://www.abc.net.au/science/holo/blorenz1.htm>. The use of image in motion here helps learners to identify with the concept. This is a wonderful use of dynamic imagery and “play” in learning.

Users Feedback

To get some feedback on how others rate these three sites, I distributed a questionnaire based on Cyberbee’s “WWW CyberGuide Ratings for Evaluation” to ten people. To make the comparison as unbiased as possible, I chose a scientific theme as all three sites have an

interactive science site. In line with the spirit of “play”, I sent them on a mission to discover how “the targets” use scientific information to equip their future warriors (see appendix A).

I received eight responses out of the ten that I distributed. Although these responses are not representative of any conclusions, the results were nevertheless interesting. I was surprised with some of the results. I had expected PBS to outperform BBC and ABC in most categories but I was wrong . The following is a summary of the results (1=best, 3=worst):

Category	PBS	BBC	ABC	Comments
Speed	1	3	2	I was surprised here that ABC did better than BBC. I guess this category is dependent on other factors like time of the day and hardware capabilities.
First Impression	1	2	1 (tie)	This surprised me again but the score was very close.
Navigation	3	1	2	I had thought all of them had good navigation. My view may be biased in this instance because I visited these sites too many times that I know my way well.
Use of multimedia	2	1	3	Again, all the scores were so close that the rating should be the same.
Content/Information	3	5	4	I was surprised that a few of the respondents felt that some of PBS’ interactivity did not increase instructional value.

Some of those surveyed were unable to complete the questionnaire because they had no multimedia capabilities. There were also comments that the need to download plug-ins was a hassle. Although the results were not representative, it made me realized two issues: 1) the importance of stating the target age group for which the content is most suited for and 2) the need to remember that most users do not have complete multimedia capabilities.

Lessons Learned

The lessons I learned from reviewing these web sites came not only from reviewing the sites but also from the process of preparing for this. The sites themselves are great learning grounds. As mentioned earlier, I had chosen PBS, BBC and ABC because they are mostly award-winning organizations known for their excellence and commitment to presenting quality and timely information. These sites pass most prescribed criteria for web site evaluation with flying colors. They contain interesting and useful content; navigation is clearly labeled and there are tools to help the user get to where they wanted to go; they have well-organized and attractive interfaces; multimedia is used efficiently; information is presented in an engaging manner and appropriate pedagogy is used at educational sites. To sum up, I learned that it takes a lot of time and expertise to make a quality web site. Also, knowing one’s audience and objectives help in the design process. This, however, does not mean that only professionals can do a good job, amateurs emulating some of the qualities and instructional design can also conjure up a decent site.

Understanding sound design principles is important to me because I am interested in online instructional development, however, I find it equally essential for me to be a savvy user of the Internet as well. For me, this translates to making a distinction between credible and non-credible sites and understanding the differences between informational and educational sites. I am glad that my preparation for this assignment contributed to some of the learning in these areas:

Web credibility

There are quite a few ways to review a web site and many commercial search engines and university librarians offer various evaluation formats. No doubt evaluation results are presented differently, many of the methods use similar criteria. However, I find the librarians' assessment methods more comprehensive. Many of them model after print evaluation methods. The following model from Dr. Nancy Everhart of St. John's University, Division of Library and Information Science is one I plan to use.

- Currency – how often is the site updated?
- Content – is the information useful and accurate for our goals?
- Authority – are the authors identified?
- Navigation – is it clear and consistent?
- Experience – does the site engage the user?
- Treatment – are there biases toward the subject matter?
- Access – can it be downloaded quickly?

Note: I did not use all of these criteria for this assignment because I reckon most of these components will produce expected results for the sites that I have selected.

Informational versus Educational sites

There is not much literature that provides guidance on educational web sites. Unexpectedly the resource I found most useful in this area came from one of the PBS pages. The components they recommend to be included in effective web-based instruction are: standards, courses, units or projects, lessons and lesson plans, student activities, information resources, interactive resources and assessments. In-depth description of these components can be found in the URL: http://litlink1.pbs.org/litteacher/peerlit/evaluating_defs.html The more components an educational site can accommodate, the more effective the sites will be.

Conclusion

The World Wide Web is fast becoming a tool for informal learning and research. The need to differentiate between good and bad resources is a skill we need to master. An acceptable resource from the World Wide Web is one with reliable and objective content, the work is up-to-date and the publisher is credible. The site should also have clear navigation for ease-of-use. PBS, BBC and ABC are good models of quality Web sites. Guidelines for reviewing Web sites are easily available from librarians and Internet search engines. If the site is for educational purposes, there should be evidence of instructional design principles to facilitate learning.

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Mission Impossible

- Your identity ⇒ A scientist
- Your mission ⇒ Infiltrate targets and report on scientific happenings
- Your Objective ⇒ To assess how scientific information are used to equip future warriors
- Your targets ⇒ <http://www.pbs.org/wnet/nature>
<http://www.bbc.co.uk/sia/index.html>
<http://www.abc.net.au/science/holo/default.htm>
- Your deadline** ⇒ **midnight Friday, April 30, 1999**
- Your secret weapon ⇒ The form (one for each target)
- Your contact ⇒ cchoy@gmu.edu
- Special instructions ⇒ Bring along patience and sharp diagnostic equipment, targets are highly sophisticated environments. Move with caution!



The Form

Circle the number which you feel the site deserves for each category:
5 = excellent and 1 = poor.

1. Speed

- the page downloads efficiently 5 4 3 2 1

2. First impression

- the page entices me to further exploration 5 4 3 2 1

3. Navigation

- instructions are clear 5 4 3 2 1

4. Use of multimedia

- graphics/sounds/video serve a
clear purpose 5 4 3 2 1

- graphics/sounds/video help in
my understanding of content 5 4 3 2 1

5. Content/Information

- site offers a wealth of information
related to my objective 5 4 3 2 1

- content is easy to understand 5 4 3 2 1

- the content of linked sites add
to my understanding of the subject 5 4 3 2 1

- provides interactivity which increases
its instructional value 5 4 3 2 1

Comments: _____

