

THE INTERNET, NOT A PANACEA: DISTANCE EDUCATION IN 2001

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ABSTRACT

The terminological confusion between "course" and "course materials" that became common during the early years of "web-based" courses has obscured the greatest capability of the World Wide Web for education: the use of hypertext. Although "web-based" learning is often oriented mainly towards rote memorization, hypertext is inherently a good vehicle for handling weakly structured content with a minimum of cultural or other bias, and opens opportunities for stimulating creative thinking, particularly in the critical combination of both stimulation and recording of thoughtful discussion.

DREAMS OF AN INSTANT CURE

One of the great dreams that both illuminate and overshadow every field of study is the quest for the "miracle cure". We all dream that somehow our own field of interest will transform the world. There are many ways in which this might happen: for example, we might discover a new principle. Among the paths to the miracle cure is that of making what was once expensive much cheaper and hence more accessible.

There is, however, an obstacle: we sometimes are misled into thinking that we have a miraculous remedy when it is really neither miraculous nor a remedy for the disease on which we focus our attention. Nevertheless, this obstacle may be turned to our advantage if our "miracle" has other good uses.

In the following discussion we discuss a tool new to distance education and set forth some considerations from knowledge management and consider how its findings apply to distance education. In particular, we

are concerned with the correcting imagery too often used by those who design, implement, and maintain Web-based learning systems. We believe that existing imagery is dysfunctional and leads to inappropriate use of some tools, while also contributing to a failure to use other powerful tools at all.

THE ADVENT OF THE WEB AND SPREAD OF A MISCONCEPTION

The idea of distance education is, of course, very old (see, e.g., Börje 1977). Until recently, the major vehicle by which such education was conducted was correspondence through postal mail. The student was expected to have the required text or other materials, and to follow the teacher's instructions, largely on his or her own. Interaction was typically slow and rare.

At first, it appears that digital communication technologies have changed the landscape of distance learning, if not that of higher education as a whole (see Benbunan-Fich *et al.* 2001 and Eastman and Swift 2001). Timing had it that this event occurred so that many instructors' first experience with digital media came on the World Wide Web (WWW or "Web"; see Berners-Lee *et al.* 1994).

As a way to introduce instructors to digital media, the Web had peculiarities. Resting on the platform of the Internet, the WWW's seemingly cost-free global reach quickly became the primary locus of "instant feedback" and "live" media. In addition, the digital nature of the Web allowed apparently limitless, perfect storage and reproduction of content. "Peer-to-peer" chat rooms and chat clients added to the focus on immediacy. The fact that the Web was a hypertext system was so pervasive that it became almost invisible to many users.

extent with immediacy of feedback in structured situations. But the new technologies also have given rise to a casual confusion in terminology, whereby course materials seem to become the course.

THE NATURE OF THE WORLD WIDE WEB

We now emphasize the most important feature of the WWW: it is a hypertext system (see above all Nelson 1987, Nielsen 1990, and Landow 1997). Without this feature, there would be none of what we call the World Wide Web (compare the Gopher system, which has all of the features of the Web *except* hypertext; see, e.g., Berkman 1993).

Even today, the WWW remains primarily a hypertext system – its value lies in the links. Pictures, videos, music, and other dense content can be delivered more efficiently through other transmission media.

Landow 1997 (p. 36 f.) points out something important: hypertext systems have the important property that they “decenter” the information-reception experience. This turns out, as Landow reiterates frequently, to have profound implications for communication. Among the implications are not only that learning through hypertext systems is not simply sequential, but also that it is less culture-centered and chauvinistic. To make a Web site that is inaccessible to an audience because of technology or language barriers (to name only two examples of such barriers) is to vitiate the purpose of hypertext. Although the value of hypertext is primarily in linkage, the decentering arising from the profusion of links is also valuable for many reasons, including its inherent thrust towards creativity and new connections for concepts not previously connected.

The leading student of Web usability who has actual data to back his results is Jakob Nielsen (see his web site at <http://www.useit.com>). Nielsen, much in the spirit of Nelson and Landow, advocates

careful attention to usability, and supports simple, clean page designs (see also Nielsen 2000) with a minimum of graphics and other bandwidth-heavy decorations.

Nielsen (see numerous articles at his site) has particularly advocated the view that the greatest value of Web sites is their links. In general, this makes sense, since it reinforces the view that the distinctive feature of hypertext is not decoration but linkage.

If the value of the Web is thought by its creators and by those who have studied Web usage to be in linkage and not in ornamentation or animation, what implications does this have for distance education over the Web?

LIVING IN THE WEB: CONNECTION AND CREATIVITY

Part of the emerging discipline of knowledge management is focused on “data mining” (see, e.g., Swift 2001), in which we extract knowledge from large data sets, primarily by statistical and other similar methods. These techniques work with data that is rather well structured. Although the construction and transmission of large data sets about customers, products, and other major business features is facilitated by the Internet, it is not necessary. Data mining and similar techniques also do not have much direct bearing on education, except in providing guidance for the marketing of educational services and products.

However, knowledge management embraces more than data mining. There exists also a large class of knowledge-management and acquisition systems for use with “unstructured”, “free-form” information. Early examples included listservs (see, e.g., Keating 1999 ch. 2), newsgroups (*ibid.*), mailing lists (*ibid.*), and chat rooms (*ibid.*). The older technologies have some disadvantages, particularly in the area of controlling response time and memory. Chat rooms are too accessible for some uses where we want well-structured and thoughtful contributions, and typically do

not provide long-term archiving. E-mail-based technologies provide slower response time, encouraging more thought, but place archiving functions at the mercies of individual users.

Beginning with the ideas of Ward Cunningham (see Leuf and Cunningham 2001), systems have emerged in which contributions can have prompt but not frivolous speed, and can be archived conveniently (see also on "blogging", Stone 2000). These techniques, when combined with a suitable search engine (of which there are many freely available), can be used to accumulate, disseminate, and access information. Here we call these applications "text-logging" systems, although one can use multimedia if needed, because the systems are built on HTML platforms.

Industry experience with text-logging systems shows that they are powerful in use. They are excellent tools for stimulating creative thought in work groups (see Leuf and Cunningham, *op. cit.*, and Thoeny 2001 and the references there); such systems are in fact widely used in enterprises where creative and developmental work is at a premium and must be done by teams.

CREATIVITY AND THE WEB: IMPLICATIONS FOR DISTANCE EDUCATION

University education, particularly marketing education, is not mere rote memorization. It is not now, and never has been easy; the spectacular success of American higher education in spreading high levels of learning through a broad spectrum of social and geographical destinations does not mean that suddenly someone has discovered the "royal road" to learning.

For distance education at the university level, the Web offers some splendid opportunities. We have enumerated some above, but the enumeration is always of aspects of learning that can be achieved in other ways, using other technologies. The Web appears to be simply an alternative

route to the implementation of existing capabilities.

However, there is the one thing that the Web can do that cannot be conveniently and efficiently done any other way: that is to stimulate *and* record thoughtful discussion. This is not inherently a distance function, but a group function. Sullivan 2001 provides a useful and powerful set of guidelines for "content management" (the branch of knowledge management primarily concerned with knowledge expressed in text). Consider how Sullivan's guidelines are met by text-logging systems.

Make metadata king: this means that there needs to be information about information. In higher education, the date, the authorship of the contribution, and indexing of the substantive content must be provided. With a search engine, the text-logging systems permit this.

Know the user: provide information about users in the form of user profiles (citing Kuflik and Shoval 2000). Provided participants in the text-logging application are identified, this requirement is also met by text-logging.

Control access to the content: as with traditional university classes, in which admission is by enrollment or the courtesy of the instructor, text-logging systems typically are used behind firewalls (although some examples of "blogs" are not).

Support rich searching: this is a typical and major feature of text-logging systems, and can be provided either by a publicly available Web-search engine (such as Google, Alta Vista, Northern Light, Lycos, or any of many others), or can be provided by a server-based rich-search tool such as awk, gawk, or any other software that supports regular expressions.

Keep content timely, automatically: this is precisely what text-logging systems do, essentially by definition. Sullivan concludes with the following profoundly optimistic note:

Free-form text is often called unstructured, but that term is a misnomer. Language's rich structure succinctly represents complex concepts and relationships, but to effectively access that information requires techniques that account for that structure and let users bridge the gap from their interests to information retrieval...

As long as we use language, we will always use words with multiple meanings and concepts expressed with a variety of words, as well as confront constantly less than perfect precision and recall. Making the implicit explicit through metadata; modeling user interests; protecting access to content; supporting search, organization, and navigation tools; and keeping content up to date all chip away at the inherent structural problems of dealing with large volumes of unstructured texts.

Despite some literature that argues for Web-based learning crystalized into bite-sized chunks, with instant feedback, university learning is not all of that kind. University learning has, for many centuries, been conveyed in language, and has typically not encouraged random, undirected contributions by anyone who happens to walk through a door. That kind of learning is a legitimate, appropriate kind of learning, but it is not the reason we give courses and degrees. Applying the Web to "instant learning" situations is not distinctive, and experience shows increasingly that it is not particularly productive.

We have university-level learning to provide rich, challenging experiences; with text-logging tools, we have an additional means by which we can more precisely control the level of challenge and stimulate creative, insightful thought.

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