“Web-based Instruction” Should Never Have Happened (Oh, Never Mind – It’s Dead Anyway)

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Growing up I remember seeing movies about university professors and other academics. Apparently, the preferred activity of these college-types was to squabble endlessly over definitions of words most people will never hear. I used to think it was funny, the way they were always portrayed as completely oblivious to the real world. When I began my own doctoral studies, I was relieved to find that academics actually spend their time squabbling over the definitions of words everyone has heard (but whose meanings they would never in their right mind question). However, the field of instructional technology - which has been accused of everything from being a hostel for psuedoscientists (Reeves, 1993) to being unable to produce persons capable of meaningfully contributing to the world (Resnick in Ross, 1999) - seems incapable of engaging in this most fundamental, ritualistic, academic practice.

The most recent and perhaps explicit example of this lack of the field’s ability to meaningfully engage in thoughtful dialog regarding its own practice was the creation of a new SIG at the 2000 AERA meeting in New Orleans. At the convention, a new SIG entitled “Education and the World Wide Web” was launched amidst a flurry of papers, posters, presentations, and books on “web-based instruction.”

When I run into people at the grocery store who don’t know the difference between the World Wide Web (hereafter “web”) and the Internet, it doesn’t really bother me. They access everything through their browser anyway, so why should they care to make the distinction? Why should they care that in a typical session they may also use e-mail, FTP, and chat, none of which are the “web”? Most people tend to operationalism in this regard anyway, some to the degree that they refer to the Internet as “Netscape,” as in, “I’ve got to look that up tonight on Netscape.”

Instructional technologists, however, and especially those of us who like to imagine ourselves as working at the forefront of the field, have absolutely no excuse whatsoever for failing to make this distinction or failing to speak in a thoughtful and precise manner. While I must admit that it is possible to run a course solely on the web, it has always been common for courses to incorporate other network services such as e-mail. The fact that web browsers have been extended in such a way as to allow them to natively speak IMAP, POP3, FTP, NNTP, Gopher, and various IM and Peer-to-Peer protocols does not mean that these other services (Napster, for example) are part of the web (no matter how many times the dumbing-down media claim it is). And each time I hear a presenter mention (or read an author who has written about) “web-based instruction,” I feel a stronger sense that those who have criticized our field have rightly done so.

One might try to defend the practice of using the term "web-based" through an argument as follows. "The web is the primary medium of delivery for these courses. We never say 'web-only' courses. This shows that our intent is to speak about the genre in terms of the most prevalent, and not the sole, medium of delivery." This may, in fact, be the case. Some people may be using the term in this manner. The confusion comes in the fact that this naming scheme (most prevalent delivery medium) breaks entirely with established traditions regarding the way the field talks about instruction. Have you ever heard anyone refer to "voice-based" instruction? Certainly this is the prevalent media of delivery in so-called traditional instruction. Perhaps it is my relative youth in the field, but I have never heard these terms used, neither have I heard any other type of instruction described in terms of the "most prevalent medium of delivery."

On the contrary, it has been my experience that types of instruction are named for the environment in which they occur. "Classroom instruction" and "computer-based instruction" are terms that both seem to follow this naming scheme and sound familiar. If it is in this manner that the term "web-based instruction" is understood, we would indeed seem to be reducing web-based instruction to simple information dumping, as our critics have claimed.

Now, I am not against the idea of having a unique identifier by which to refer to a new instructional environment and the instruction that occurs within it. It seems clear that the term "classroom instruction" does not fit instruction in this new environment, since I can participate in it from my bedroom. "Computer-based instruction" doesn't sound right either, as it implies the use of a singular, stand-alone computer. "Internet-based" instruction is certainly closer to what I believe we mean, but technically this term would rule out anything that was "intranet-based," as is so much of corporate training.

I do not propose to solve this naming problem in the context of so short a paper. However, it does seem that the field should adopt a name reflecting the thoughtful effort of people with more technical expertise than laymen. Lacking another term, I will use "online instruction" for the remainder of this paper.

Oh, Never Mind – "Web-based Instruction" is Dead, Anyway

This naming dispute would be of much more importance were it not for the fact that what has been called "web-based instruction" is about to disappear anyway. The web, which has enjoyed prominence as the Internet's most popular application (although e-mail use is actually higher than web use), is about to be surpassed in popularity by another type of application. Applications built around a Peer-to-Peer architecture are about to do to the web what the web did to gopher.

The first Peer-to-Peer application to gain the public's eye was Napster, which in less than two years went from nothing to an estimated 50 million users registered users (CNN, 2001), meaning that better than 1 in 10 of all Internet users worldwide have subscribed to Napster's service (Global Reach, 2001). The first conference on Peer-to-Peer computing was held in February of 2001, and all the major software players (such as MicroSoft and

Novell) were represented, as were some newcomers (such as Freenet, Gnutella, and ToadNode). After every presentation, venture capitalists would surround the various newcomer presenters and plaster them with business cards and promises. It would appear that some momentum is building behind peer-to-peer.

Peer-to-Peer (P2P) represents the next logical stage in the development of computing architectures. To obscenely oversimplify and state that progression in terms of our current client-server model, in the beginning their were mainframes. Before machines could be networked, these giant standalone machines were big clients, providing no services and without the ability to even communicate with machines. Eventually terminals were added to these mainframes so that they could be used by several people, in potentially separate places. This progression from the mainframe outward continued thanks to networking research, eventually allowing power to be shared more evenly among a central server and several clients. Even today, we still talk about web servers, mail servers, FTP servers, etc. Our desktop machines are generally clients that access services provided by these servers and provide no services of their own.

However, driven by Moore's law and an attitude of acceptable anarchy fostered by the Internet, we are now reaching the other end of the pendulum, in which every computer is a server, both accessing services provided by other machines and providing services to other machines. Because machines are equal under this computing paradigm, they are referred to as "peers," and communication is said to take place from peer to peer. A broad term itself, P2P definitions can include research areas such as grid computing, distributed computing, and parallel computing.

The research applications of distributed systems have been evident for some time, particularly CPU sharing schemes. Software such as Distributed.Net and SETI@home have been using spare computing cycles on users machines to attempt to break military-grade encryption or look for signs of life in outer space for years. But while research applications are abundant, there are as yet no real educational applications. This is sure to be a burgeoning research area in the very near future (like, today).

Napster was the first P2P application to combine distributed file sharing with communications functionality such as chat. It was also the first to bring the world's attention to what happens when everyone, everywhere has the power to not only access services, but provide services. Those of us who believe in construction and collaboration as fundamental instructional strategies now have an instructional technology that provides a significantly better architectural match to our philosophical viewpoint. It is up to instructional technologists to harness this power for the learning of people everywhere.

The long awaited anarchy is almost here… It is only a matter of time before students give up on music and start swapping homework and test answers on Edu-Napster. Perhaps this situation will finally force some educational reform through a stagnant system where professors continue using the same lecture notes and exams for decades on end. God bless peer-to-peer!

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