

Dear Bachelor Students,

I have included all the important topics which you need to focus on for my part of the theory exam. I have not found enough time to compile all the notes for your subject, therefore I am sending you few text. So please refer to the topics I have mentioned here and cross refer to the notes. The keywords I have mentioned are really important. Some of the topics mentioned here might not have related texts, So please look up online/google for such topics.

Study well, All the best.
:)

WEB JOURNALISM REFERENCE NOTES

BAJC 5th Semester | JCS 311



Question Paper Pattern

My part of this subject includes 25 Marks. You will have a question on Short notes for FIVE marks. One TEN marker and One case study question which is again for TEN marks.

*Best Wishes
Chandan Raikar*

FOCUS

The process of Pre-production | Storyboarding and Importance | Information Architecture | The principles of Web Journalism | Types of Navigation | Cyberculture Studies | Popular Cyberculture | HTML | CSS | HTML5 | The core Design principles | Binary Dualism | Limited Dualism | Rhetoric Dualism | Top-level or Vertical and Horizontal navigation | The Principles of Web Journalism | Web Portals | Critical Cyberculture Studies | Horizontal Web Portals and Vertical Web Portals | Sitemap | Web Crawler | UCD - User centric design | Digital Divide | The process of Pre-production | Storyboarding and Importance | Information Architecture | The principles of Web Journalism | Types of Navigation | Cyberculture Studies | Popular Cyberculture | HTML | CSS | HTML5 | The core Design principles | Binary Dualism | Limited Dualism | Rhetoric Dualism | The process of Pre-production | Storyboarding and Importance | Information Architecture | The principles of Web Journalism | Types of Navigation | Cyberculture Studies | Popular Cyberculture | HTML | CSS | HTML5 | The core Design principles | Binary Dualism | Limited Dualism | Rhetoric Dualism | Top-level or Vertical and Horizontal navigation | The Principles of Web Journalism | Web Portals | Critical Cyberculture Studies | Horizontal Web Portals and Vertical Web Portals | Sitemap | Web Crawler | UCD - User centric design | Digital Divide | The process of Pre-production | Storyboarding and Importance | Information Architecture | The principles of Web Journalism | Types of Navigation | Cyberculture Studies | Popular Cyberculture | HTML | CSS | HTML5 |

Looking Backwards, Looking Forward: Cyberculture Studies 1990-2000

© David Silver, Media Studies, University of San Francisco

Originally published in *Web.studies: Rewiring Media Studies for the Digital Age*, edited by David Gauntlett (Oxford University Press, 2000): 19-30.

While still an emerging field of scholarship, the study of cyberculture flourished throughout the last half of the 1990s, as witnessed in the countless monographs and anthologies published by both academic and popular presses, and the growing number of papers and panels presented at scholarly conferences from across the disciplines and around the world. Significantly, the field of study has developed, formed, reformed, and transformed, adding new topics and theories when needed, testing new methods when applicable.

In an attempt to contextualize the chapters found in this volume, this essay traces the major works of scholarship on cyberculture from the last ten years, seen in three stages or generations. The first stage, popular cyberculture, is marked by its journalistic origins and characterized by its descriptive nature, limited dualism, and use of the Internet-as-frontier metaphor. The second stage, cyberculture studies, focuses largely on virtual communities and online identities and benefits from an influx of academic scholars. The third stage, critical cyberculture studies, expands the notion of cyberculture to include four areas of study -- online interactions, digital discourses, access and denial to the Internet, and interface design of cyberspace -- and explores the intersections and interdependencies between any and all four domains.

I. Popular Cyberculture

Our disciplinary lineage begins with what I call popular cyberculture, a collection of essays, columns, and books written by particularly wired journalists and early adapters. Starting in the early 1990s, these cultural critics began filing stories on the Internet, cyberspace, and the “information superhighway” for major American newspapers and magazines. Significantly, what began as an occasional column in a newspaper’s technology section soon became feature articles appearing on the front page, in the business section, and in lifestyle supplements, as well as within the new media/cyberspace beat of many mainstream magazines. Between 1993 and 1994, for example, Time magazine published two cover stories on the Internet while Newsweek released the cover story “Men, Women, and Computers.” Moreover, in 1994, the second editions of the popular how-to books *The Internet for Dummies* and *The Whole Internet* became bestsellers.

The popular cyberculture writings were generally descriptive. Usually required to follow the term Internet with the parenthetical phrase the global computer network system, these journalists had the unenviable task of introducing non-technical readers to the largely technical, pre-World Wide Web version of cyberspace. Accordingly, much of this work included lengthy descriptions, explanations, and applications of early Net technologies such as file transfer protocol, gopher, lynx, UNIX configurations, telnet, and Usenet.

In addition to being overly descriptive, early popular cyberculture often suffered from a limited dualism. As a number of scholars (Jones 1997; Kinney 1996; Kling 1996; Rosenzweig 1999) have noted, early popular cyberculture often took the form of dystopian rants or utopian raves. From one side, cultural critics blamed the Net for deteriorating literacy, political and economic alienation, and social fragmentation. For example, Birkerts (1994) warned that the Internet, hypertext, and a host of electronic technologies would produce declining literacy and a less than grounded sense of reality. Sale (1995) drove home the points he made in his book *Rebels Against the Future: The Luddites and Their War on the Industrial Revolution: Lessons for the Computer Age* by smashing computers while on a promotional tour, and Stoll (1995), upon shifting

career tracks from a cyber-hyper computer hacker to a cyber-griper Cassandra, begged cybernauts to log off, reminding us that “life in the real world is far more interesting, far more important, far richer, than anything you’ll ever find on a computer screen” (13).

Conversely, a vocal group of writers, investors, and politicians loosely refereed to as the technofuturists declared cyberspace a new frontier of civilization, a digital domain that could and would bring down big business, foster democratic participation, and end economic and social inequities. While finding platforms within major American newspapers and popular magazines, among nascent organizations like the Electronic Frontier Foundation, and throughout newsgroups, listservs, and Web sites, their primary pulpit was a new line of technozines -- glossy, visually-impairing magazines with names like Mondo 2000, bOing bOing, and Wired. Encapsulating the utopian rhetoric of the technofuturists, Wired’s publisher Louis Rossetto likened cyberspace to “a new economy, a new counter culture, and beyond politics”; the magazine’s executive editor Kevin Kelly proclaimed “technology is absolutely, 100 percent, positive” (Keegan 1995: 39-42); and contributing editor John Perry Barlow argued “with the development of the Internet, and with the increasing pervasiveness of communication between networked computers, we are in the middle of the most transforming technical event since the capture of fire” (“What Are We Doing Online?” 1995: 36).

Not surprisingly, many politicians joined their ranks. Speaking at a conference in Buenos Aires, Vice President Al Gore (1995) remarked:

These highways -- or, more accurately, networks of distributed intelligence -- will allow us to share information, to connect, and to communicate as a global community. From these connections we will derive robust and sustainable economic progress, strong democracies, better solutions to global and local environmental challenges, improved health care, and -- ultimately -- a greater sense of shared stewardship of our small planet.

Finally, in addition to its descriptive nature and rhetorical dualisms, early popular cybertulturalists employed the frontier as its reigning metaphor. William Gibson (1984) famously coined the term cyberspace in his groundbreaking novel Neuromancer: “Cyberspace. A consensual hallucination experienced daily by billions of legitimate operators . . . A graphic represen-

tation of data abstracted from the banks of every computer in the human system. Unthinkable complexity” (51). In *Neuromancer* a new frontier emerges, one whose currency rests less in geographic space and more in digital information. It did not take long for activists, writers, and scholars to latch on to and reify the metaphor. In the now canonical essay “Across the Electronic Frontier,” Kapor and Barlow (1990) described the Net in the following terms: “In its present condition, cyberspace is a frontier region, populated by the few hardy technologists who can tolerate the austerity of its savage computer interfaces, incompatible communication protocols, proprietary barricades, cultural and legal ambiguities, and general lack of useful maps or metaphors.” The frontier metaphor stuck. Rheingold (1993a) observed: “The pioneers are still out there exploring the frontier, the borders of the domain have yet to be determined, or even the shape of it, or the best way to find one’s way in it” (58). Rushkoff (1994) noted, “Nowhere has the American pioneer spirit been more revitalized than on the electronic frontier” (235). Whittle (1997), discussing the future of the Internet, waxes poetic: “The pioneers, settlers, and squatters of the virgin territories of cyberspace have divided some of that land into plots of social order and plowed it into furrows of discipline -- for the simple reason that natural resources can only be found in the mind and have great value if shared” (420).

II. Cyberculture Studies

Like most generations, mine bleed. Indeed, a significant portion of our second generation of cyberculture scholarship, cyberculture studies, can be characterized by its descriptive nature, binary dualism, and frontier metaphors, and, as such, could easily be referred to as popular cyberculture. Conversely, some of the early journalists made important explorations into and observations about cyberspace, thereby allowing them membership into the second generation. One such journalist was Julian Dibbell, whose provocatively titled “A Rape in Cyberspace; or How an Evil Clown, a Haitian Trickster Spirit, Two Wizards, and a Cast of Dozens Turned a Database into a Society,” appeared in *The Village Voice* in 1993. In the article, Dibbell presents the now-endlessly-recounted tale of “Mr. Bungle,” a member of LambdaMOO (a popular multi-user domain, or MUD) who uses a voodoo doll -- a program that allows one user to control the online “actions” of another -- to rape, violently attack, and force unwanted liaisons upon a number of LambdaMOOers. Dibbell describes the attack, the violated users’ emotional reactions, the community’s outrage, and the public discussion of Mr. Bungle’s punishment,

including the possibility of ‘toading,’ a process by which a MUD wizard turns a player into a toad, eliminating the player’s identity and description. Noting that the chief wizard of the MUD recently revoked the toading process in an attempt to foster self-governance, Dibbell traces the steps of one user, JoeFeedback, who decides on his own to eliminate the Mr. Bungle character. Besides offering readers a provocative glimpse into the online environment, Dibbell brilliantly portrays the complex individual and social negotiations existing within LambdaMOO, negotiations which, when viewed together, constitute very real identities and communities.

Using Dibbell as a starting point, we can characterize our second generation with a single passage by cybertheorist Allucquere Rosanne Stone (1991) who defines cyberspace as “incontrovertibly social spaces in which people still meet face-to-face, but under new definitions of both ‘meet’ and ‘face’” (85). In other words, while cyberspace may lack for the most part the physical geography found in, say, a neighborhood, city, or country, it offers users very real opportunities for collective communities and individual identities. It is upon these twin pillars -- virtual communities and online identities -- that cyberculture studies rests.

One of the earliest and certainly the most referenced articulators of the virtual communities idea is Howard Rheingold (see his chapter in this book). Building upon Stone, Rheingold (1993a) defines a virtual community as

A group of people who may or may not meet one another face-to-face, and who exchange words and ideas through the mediation of computer bulletin boards and networks. In cyberspace, we chat and argue, engage in intellectual discourse, perform acts of commerce, exchange knowledge, share emotional support, make plans, brainstorm, gossip, feud, fall in love, find friends and lose them, play games and metagames, flirt, create a little high art and a lot of idle talk. We do everything people do when people get together, but we do it with words on computer screens, leaving our bodies behind (58). A few months later, Rheingold published *The Virtual Community* (1993b), a significant expansion upon his earlier essay which would quickly become one of the principal texts of cyberculture studies. In the book, Rheingold provides a brief history of the Internet, a social history of a particular online community -- the Whole Earth ‘Electronic Link (the WELL) -- and countless examples of online interactions which take place within both the WELL and the Internet. Although the

author concludes with a cautionary chapter detailing the potential perils of an overly commodified Internet, online surveillance, and cyber-induced hyper-reality, Rheingold's enthusiasm dominates:

We temporarily have access to a tool that could bring conviviality and understanding into our lives and might help revitalize the public sphere. The same tool, improperly controlled and wielded, could become an instrument of tyranny. The vision of a citizen-designed, citizen-controlled worldwide communications network is a version of technological utopianism that could be called the vision of "the electronic agora" (14).

If Rheingold's *The Virtual Community* is the first pillar of cyberspace studies, the second is Sherry Turkle's *Life on the Screen: Identity in the Age of the Internet* (1995). Turkle addresses the idea of online identities by exploring ethnographically a number of virtual environments, including Multi-User Domains, or MUDs. She finds that while some users use cyberspace to repress an otherwise less-than-functional "real" or offline life, most use the digital domain to exercise a more true identity, or a multiplicity of identities. In each case, users are free to pick and choose genders, sexualities, and personalities within what Bruckman (1992) labels an "identity workshop."

Like Rheingold, Turkle's take on cyberspace is largely enthusiastic. Through a number of case studies, the author reveals how users of MUDs create online identities to help navigate their offline lives. For example, Turkle introduces Ava, a graduate student who lost her leg in a car accident. During her recuperation process, Ava began to MUD, and created a one-legged character. Soon after, her character became romantically involved with another, and they began to make virtual love, or, as it was then commonly referred to, have "tinysex." According to Turkle, these online interactions led Ava to become more comfortable with her offline body, leading her to note: 'Virtuality need not be a prison. It can be the raft, the ladder, the transitional space, the moratorium, that is discarded after reaching greater freedom. We don't have to reject life on the screen, but we don't have to treat it as an alternate life either' (263).

By the mid 1990s, cyberspace studies was well underway, focused primarily on virtual communities and online identities. Further, as a result of the enthusiasm found in the work of Rheingold and Turkle, cyberspace was often articulated as a site of empowerment, an online space reserved for construction, creativity, and community. Fortunately, however, this simplification was matched by the richness found in the nascent field's welcoming of interdisciplinarity. With the growing popularity of user-friendly Internet service providers such as AOL and CompuServe and the widespread adoption of Net-

scape, by the mid 1990s, the great Internet rush was on. Significantly, the introduction of the Web was not only a technological breakthrough but also a user breakthrough. Replacing tricky file transfer protocol and burdensome gopher with a simple, point-and-click graphical interface, the Web helped to foster a less technical, more mainstream Internet populace. Coupled with these technological breakthroughs were academic considerations. In addition to a concerted effort on the part of university administrators to get faculty wired, scholarly conferences, papers, archives, and discussions came online, leading all but the most technophobic academics to the Net.

As expected, new scholars brought new methods and theories. For example, while some sociologists approach virtual communities as “social networks” (Wellman 1997; Wellman et al 1996), others employ the sociological traditions of interactionism and collective action dilemma theory (Kollock & Smith 1996; Smith & Kollock 1999). Within anthropology, scholars began formulating a new subfield, cyborg anthropology, devoted to exploring the intersections between individuals, society, and networked computers (Downey & Dumit 1998; Escobar 1996). Researchers from a related field, ethnography, took their cue from Turkle and began to study what users do within diverse online environments, ranging from online lesbian bars and Usenet newsgroups to Web-based “tele-gardens” and online cities (Baym 1995a, 1995b, 1997; Correll 1995; McLaughlin et al 1997; Collins-Jarvis 1993; Silver 2000).

At the same time, linguists began to study the writing styles, Netiquettes, and (inter)textual codes used within online environments (Danet et al 1997; Herring 1996a, 1996b, 1996c). Similarly, feminist and women’s studies researchers have used textual analysis and feminist theory to locate, construct, and deconstruct gender within cyberspace (Cherny & Weise 1996; Consalvo 1997; Dietrich 1997; Ebben & Kramarae 1993; Hall 1996). Further, a collection of community activists and scholars began to explore the intersection of real and virtual communities in the form of community networks, including the Public Electronic Network (PEN) in Santa Monica, California, the Blacksburg Electronic Village (BEV) in Blacksburg, Virginia, and the Seattle Community Network (SCN) in Seattle, Washington (Cisler 1993; Cohill & Kavanaugh 1997; Schmitz 1997; Schuler 1994, 1996; Silver 1996, 1999, 2000).

III. Critical Cyberculture Studies

By the late 1990s, the study of cyberspace had arrived. Indeed, in the second half of the 1990s, many academic and popular presses have published dozens of monographs, edited volumes, and anthologies devoted to the growing field of cyberspace. Reflecting this growth, recent scholars take a broader view of what constitutes cyberspace. No longer limiting the field to merely virtual communities and online identities, a third generation of scholarship, or what I call critical cyberspace studies, has emerged. As with all emerging fields of study, the landscape and contours of critical cyberspace studies are, at best, chaotic and difficult to map. That said, I wish to argue that critical cyberspace studies contains four major areas of focus, each, as we will see, interdependent on one another.

As revealed in the last few pages, the perspectives and priorities of the first and second generations of cyberspace scholars differ significantly. Instead of approaching cyberspace as an entity to describe, contemporary cyberspace scholars view it as a place to contextualize and seek to offer more complex, more problematized findings. In general, four dominant areas of focus have emerged. Taken together, these areas serve as the foundation for critical cyberspace studies:

Critical cyberspace studies explores the social, cultural, and economic interactions which take place online;
Critical cyberspace studies unfolds and examines the stories we tell about such interactions;
Critical cyberspace studies analyzes a range of social, cultural, political, and economic considerations which encourage, make possible, and/or thwart individual and group access to such interactions;
Critical cyberspace studies assesses the deliberate, accidental, and alternative technological decision- and design-processes which, when implemented, form the interface between the network and its users.
Critical cyberspace studies, in its most rich manifestation, explores the intersections between any and all four of these focal points.

Contextualizing Online Interactions

While critical cyberspace studies scholars acknowledge the importance of virtual communities and online identities, they take a step back and contextualize their topics. For example, Jones (1995) sets the stage for what could be called the social

construction of online reality. Unlike so many cyberculturalists who approach their topic as a brave new world, Jones contextualizes cyberspace within the more traditional paradigms of communication and community studies, including James Carey's work on the electronic sublime, James Beniger's notions of pseudo-communities, and David Harvey's theories of postmodern geographies. From there, the author reminds us of the cultural construction of cyberspace and warns us not to celebrate uncritically its potential. Two years later, Jones (1997) continued this necessary process of contextualizing by problematizing some of the key definitions and directions of cyberculture studies. Drawing upon the work of Benedict Anderson, Richard Sennet, and, once again, James Carey, Jones historically locates popular rhetoric heralding the Net's potential to transcend time and space. Next, commenting upon Rheingold's *The Virtual Community*, he questions the all-too-unproblematised notion of virtual communities. Substituting Neo-Luddism with critical caution, Jones calls for a healthy re-evaluation of cyberspace, noting that the "Internet is another in a line of modern technologies that undermine traditional notions of civil society that require unity and shun multiplicity while giving impressions that they in fact re-create such a society" (25).

In addition to contextualizing virtual communities and online identities, many scholars have gone beyond merely recanting the findings of Rheingold and Turkle to make critical explorations and discoveries of their own. For example, McLaughlin et al (1995) attempt to establish general, online codes of conduct by collecting all messages posted to five newsgroups within a three week period and analyzing them for normative discourse. From the data, they deduce seven categories of reproachable behavior, including novice use of technology, bandwidth waste, ethical violations, and inappropriate language. Next, they note the ways in which "rules of conduct on Usenet as currently constituted can be understood as a complex set of guidelines driven by economic, cultural, social-psychological, and discursive factors" (107). Much more than a simple set of "netiquette," the authors' findings trace the intricate parameters and factors that help to support the relative success or failure of online communities. Similar scholarship (Kollock and Smith 1996; MacKinnon 1998, 1997, 1995; Phillips 1996) focuses on the parameters and punishments that serve to establish acceptable and unacceptable behavior within online environments.

At the same time, Baym (1995) has used ethnographic methods to better understand the nature of virtual communities.

Baym explores the well-trafficked Usenet newsgroup *rec.arts.tv.soaps*, or r.a.t.s., and suggests that online communities emerge out of a complex intersection between five factors: external contexts, temporal structures, system infrastructure, group purposes, and participant characteristics. Applying such factors to r.a.t.s., Baym concludes that

participants in [computer-mediated communication] develop forms of expression which enable them to communicate social information and to create and codify group-specific meanings, socially negotiate group-specific identities, form relationships which span from the playfully antagonistic to the deeply romantic and which move between the network and face-to-face interaction, and create norms which serve to organize interaction and to maintain desirable social climates (161).

Another important yet largely unexplored element of contextualizing online interactions is to trace the history and development of virtual communities. While past scholars approached online communities as already existing digital environments, critical cyberspace studies scholars (Dibbell 1998; Horn 1998; Silver 1996, 1999) have begun to analyze their brief yet crucial histories.

Discouraging Cyberspace

Like all forms of culture, cyberspace is, in part, a product of the stories we tell about it. Indeed, the tales we tell over coffee, read in *Wired*, *Newsweek*, and *The New York Times*, and watch in movies like *The Net*, *The Matrix*, and *Disclosure* inform the ways in which we engage in cyberspace. Further, these stories -- and lack of stories -- can potentially discourage and dissuade would-be cybernauts from going online. Thus, for some scholars (Borsook 1996; Sobchack 1993; Ross 1991), cyberspace is not only a site for communication and community but also a generator of discourse, a very real and very imagined place where a variety of interests claim its origins, its myths, and its future directions. As many third generation cyberspace studies scholars have noted, two disturbing discourses of cyberspace have emerged: the Net as frontier and cyberspace as boystown.

For example, Miller (1995) notes the ways in which the Net-as-frontier metaphor serves to construct cyberspace as a place of manly hostility, a space unsafe for women and children. She argues: "the idea that women merit special protections in an

environment as incorporeal as the Net is intimately bound up with the idea that women's minds are weak, fragile, and unsuited to the rough and tumble of public discourse" (57). Further, as Doheny-Farina (1996) argues, the metaphor reinvokes the American myth of the individual and "conjures up traditional American images of the individual lighting out from the territories, independent and hopeful, to make a life" (16).

In addition to the Net as frontier metaphor, a dominant discourse found in magazines and movies is cyberspace as boystown. Understanding cyberculture to be not only online interactions but also the stories told about such interactions, scholars have performed feminist readings on such technozines as *Wired* and *Mondo 2000*. For example, Borsook (1996) analyzes the ways in which the trendy magazine has appropriated countercultural themes in the name of testosterone-driven commercialism:

Wired has consistently and accurately been compared in the national media to *Playboy*. It contains the same glossy pictures of certified nerd-suave things to buy -- which, since it's the nineties, includes cool hand-held scanners as well as audio equipment and cars -- and idolatrous profiles of (generally) male moguls and muckymucks whose hagiography is not that different from what might have appeared in *Fortune*. It is the wishbook of material desire for young men (26).

Online Access and Barriers

While cyberculture studies celebrates the existence of online communities, critical cyberculture studies seeks to better understand their participants. Although important work in the field of online marginality has begun, much more is needed. Indeed, while scholars from across the disciplines flock to the general topic of cyberculture, few have made their way into the margins to explore issues of race, ethnicity, and sexuality online.

One step in the right direction is the work of the National Telecommunications and Information Administration, or NTIA, an agency of the U.S. Department of Commerce. In a three-part series of studies titled "Falling Through the Net," the NTIA examines what they call the "digital divide," a growing gap between information haves and have-nots, and the economic, social, cultural, and geographic elements contributing to the gap. For example, in "Falling Through the Net: A Survey of the 'Have Nots' in Rural and Urban America" (1995), the NTIA concludes that class, race, age, and education contributed

significantly to online access. In “Falling Through the Net II: New Data on the Digital Divide” (1998), the NTIA expanded their study to find that although Americans, as a nation, accessed the Internet in increasing numbers,

the “digital divide” between certain groups of Americans has increased between 1994 and 1997 so that there is now an even greater disparity in penetration levels among some groups. There is a widening gap, for example, between those at upper and lower income levels. Additionally, even though all racial groups now own more computers than they did in 1994, Blacks and Hispanics now lag even further behind Whites in their levels of PC-ownership and on-line access.

Finally, in “Falling Through the Net: Defining the Digital Divide” (1999), the NTIA reveals that the digital divide had increased further, leading Larry Irving, assistant secretary of Commerce for Telecommunications, to remark: “America’s digital divide is fast becoming a ‘racial ravine.’” As before, the report notes that while Americans, as a nation, continue to flock to the Net, disparities based on race, class, and region contribute to the growing gap between information haves and have-nots.

In addition to the barriers discussed by the National Telecommunications and Information Administration, there are other, more cultural ones. Performance artist and writer Guillermo Gomez-Pena (1996) recounts his and his collaborator Roberto Sifuentes’ 1994 entrance into cyberspace, a digital space already largely “settled” by ethnocentrism:

We were also perplexed by the “benign (not naive) ethnocentrism” permeating the debates around art and digital technology. The unquestioned lingua franca was of course English, “the official language of international communications”; the vocabulary utilized in these discussions was hyper-specialized and depoliticized; and if Chicanos and Mexicans didn’t participate enough in the Net, it was solely because of lack of information or interest (not money or access), or again because we were “culturally unfit” (178).

Along similar lines, Bailey (1996) argues that shared customs such as netiquette and acronyms constitute “newbie snobbery,” producing an unwelcoming terrain for marginalized cultures. He notes: “The Net nation deploys shared knowledge and language to unite against outsiders: Net jargon extends beyond technical language to acronyms both benign (BTW, ‘By the way’) and snippy (RTFM, ‘Read the fucking manual’). It includes neologisms, text-graphical hybrids called emoticons, and a thoroughgoing anti-’newbie’ snobbery. Like any other community, it uses language to erect barriers to membership” (38).

This is not to suggest that traditionally marginalized cultural groups have not taken to the wires as a means for communication, community, and empowerment. Indeed, a number of contemporary cyberculturalists explore marginalized cultural groups' attempts to establish self-defined, self-determined virtual spaces. For example, Mitra (1997) analyzes the discursive practices of contributors to the Usenet newsgroup, soc.culture.indian. While acknowledging strong "segmenting forces," especially when users crosspost messages to soc.culture.pakistan, Mitra argues that the online community generates "centralizing tendencies" for Indian users: "these diasporic people, geographically displaced and distributed across large areas, are gaining access to [internet] technologies and are increasingly using these technologies to re-create a sense of virtual community through a rediscovery of their commonality" (58). Other scholars (Shaw 1997; Correll 1995) make similar arguments regarding gay and lesbian online communities.

As many scholars have noted, males tend to dominate online discussions, regardless of the topic. Recently, however, female users have countered this domination -- not to mention hostility -- by creating online spaces of their own. As Camp (1996) recounts, Systers, a mailing list of women in computer science and related disciplines, was established in response to male-dominated discussions about women taking place in Usenet newsgroups like soc.women. The solution was to 'withdraw to a room of our own -- to mailing lists' (115). Able to control and moderate the list, members of Systers discuss the issues most relevant to them. These online spaces also include, of course, the Web. These sites are as diverse as the population they hope to represent, ranging from academic sites like the Women's Studies Database (www.inform.umd.edu/EdRes/Topic/WomensStudies) and the Center for Women and Information Technology (www.umbc.edu/cwit), to hipper, do-it-yourself sites like geekgirl (www.geekgirl.com.au) and AngstGrrl! (www.angstgrrl.com). Not to be left out of growing markets, feminist-leaning Web sites like iVillage.com (www.ivillage.com), Oxygen (www.Oxygen.com), and Women.com (www.Women.com) fuse timely women's issues with targeted cyber-marketing.

Digital Design

Second generation cyberculturalists admirably explored the kinds of communities and identities found on the Internet. Yet too often they all but ignored the ways in which the digital design of online spaces informs the types of interactions made

possible. One exception is the significant attention literary scholars paid to hypertext, or what is commonly referred to as hypertext studies. Focusing more on early hypertext software like HyperCard than on online networks such as the Internet and the Web, hypertext scholars (Bolter 1991; Landow 1992, 1994) compared the new media to contemporary critical theory and considered the ways in which hypertext reconfigures the text, writer, and reader.

More recently, however, conversations between computer scientists, community activists, and ethnographers have produced new insights into the complex relationships between humans and computers. Commonly referred to as human-computer interaction, or HCI, such work approaches the interface as a critical site for interaction. The design of an interface -- as designers have known for years -- can have a substantial impact upon the relative success of a site's intentions. For example, as Kollock (1996) notes in "Design Principles for Online Communities," online environments should be designed to encourage user cooperation, maintain a community-based institutional memory, and include elements of the physical environment through which users travel. Currently, a number of scholars (Baecker 1997, Kim 1999) are developing models for discussing and assessing online interfaces. The pursuit has also been one of the key sites of study for a number of research institutes, including the Graphics, Visualization and Usability Center (www.cc.gatech.edu/gvu) at the Georgia Institute of Technology, the Human-Computer Interaction Lab (HCIL) (www.cs.umd.edu/hcil) at the University of Maryland, and the Knowledge Media Design Institute (www.kmdi.org) at the University of Toronto.

Issues of design and participation come together in the relatively new field participatory design, an approach pioneered in Scandinavia and currently making waves in the United States. As Schuler and Namioka (1993) note, participatory design "represents a new approach towards computer systems design in which the people destined to use the system play a critical role in designing it" (xi). With support from the Computer Professionals for Social Responsibility, participatory design has been debated and adopted by both scholars and designers (Muller et al 1992; Shneiderman & Rose 1997; Trigg et al 1994).

Conclusion: Bringing it All Together

As previously noted, critical cyberspace studies at its best does not focus simply on one of its four key areas. Instead, it

seeks to comprehend the relationships, intersections, and interdependencies between multiple areas. To better understand this point, we turn quickly to the work of Nakamura (1999) and Collins-Jarvis (1993). Brief yet penetrating, Nakamura's "Race In/For Cyberspace: Identity Tourism and Racial Passing on the Internet," explores the ways in which race is written within the popular MUD, LambdaMOO. She observes that while users are required to specify their genders, there is no such option for race: "It is not even on the menu," Nakamura notes (444). Instead, the formation of racial identity is limited to the selection of already-established characters. Focusing specifically on Asian identity formation, Nakamura notes that the vast majority of such characters -- Mr. Sulu, Bruce Lee, Little Dragon, and Akira, for example -- fall within familiar discourses of racial stereotyping: "The Orientalized male persona, complete with sword, confirms the idea of the male Oriental as potent, antique, exotic, and anachronistic" (445).

Countering optimists who view cyberspace as a space where race does not matter, Nakamura argues that not only does it matter, but it has been designed out of the network, or what I call routed around. Significantly, this process is largely a design issue; the interface of LambdaMOO is designed without race-based user identities. Instead, users are forced to assume one of the default identities -- identities which for Asian Americans reinforce stereotypes. Nakamura's work is important, therefore, because it reveals the interdependent relationships between interface design and user identities.

The issues of access, discursive communities, and insider/outsider dynamics come together in an article on one of the first community networks in the world, Santa Monica's Public Electronic Networking system, or PEN. In her article "Gender Representation in an Electronic City Hall: Female Adoption of Santa Monica's PEN System," Collins-Jarvis examines the reasons why the percentage of female PEN users (30 per cent) was, for the early 1990s, unusually high. Significantly, Collins-Jarvis offers three answers: PEN's public terminals, the availability of socially- and politically-related discussions and forums related to "female interests," and the ability for women to take part in the network's design and implementation.

According to Collins-Jarvis, female users of PEN required not only access to get involved, they also needed a reason to participate: "Computing systems which appeal to women's norms and interests (e.g. by providing a channel to enact participatory political norms) can indeed increase female adoption rates" (61). Further, when faced with often hostile flam-

ing and a dearth of “women-specific” forums, female users of PEN assumed the responsibility of reinventing rather than rejecting the network. This reinvention took the form of creating a number of conference topics and user groups devoted specifically to issues of their own. Like Nakamura, Collins-Jarvis correctly understands online interactions to be a product of many offline factors, including design, content, and outreach.

As Nakamura and Collins-Jarvis suggest, cyberspace is best comprehended as a series of negotiations which take place both online and off. In this light, it is crucial to broach issues of discourse, access, and design. In the new millennium, it is the task of cyberspace scholars to acknowledge, reveal, and critique these negotiations to better understand what takes place within the wires.

Types of navigation

<http://www.motive.co.nz/glossary/navigation.php>

Principles of Design

http://www.digital-web.com/articles/principles_of_design/

<http://learndesignprinciples.com/>

Chapter I

Portals, Portals Everywhere

Arthur Tatnall

Victoria University, Australia

Abstract

In general terms a portal is just a gateway, and a Web portal can be seen as a gateway to the information and services on the Web. This chapter explores the definition of the word “portal” and attempts a categorisation of the various types of Web portals. It outlines some of the many uses for portals and shows that the portal concept is equally useful for accessing corporate intranets as for the public Internet. In conclusion the chapter looks at the proposition that the portal is dead and finds that any announcement to this effect is very much premature. Portals are everywhere and are likely to grow to even greater importance in the future.

Introduction

Kate and Leopold (in the film of the same name) travelled through a time portal from the 1800s, and the exploration team in the television series

Stargate SG-1 travels to the other side of the universe using a portal. The word “portal” has been around for many years and was even referred to in 1595 by Shakespeare in *Richard II* (Act 3, Scene 3): “See, see, King Richard doth himself appear, as doth the blushing discontented sun from out the fiery portal of the east.” In its simplest form the word “portal” just means a gateway, but often a gateway to somewhere quite different than just the next room or street. The *Oxford Reference Dictionary* (Pearsall & Trumble, 1996) defines a portal as: “a doorway or gate, etc., especially a large and elaborate one.” In this sense we could, perhaps, refer to the Great Portal of Kiev (Mussorgsky) or to the Pearly Portal. In this chapter, however, we are referring much more specifically to Web portals.

The term “Web portal” is overused and difficult to define precisely. In the 15 other chapters of this book each of the authors has provided their own definition of this term, from their own perspective. Many of the definitions are similar, but some definitions are able to provide a little more insight into the use of Web portals.

A colleague from my academic department at Victoria University says that there is nothing new about portals, and in this he is both partially right and completely wrong. A simple definition sees a Web portal as a special Web site designed to act as a gateway to give convenient access to other sites. In a sense there is nothing new about this as Web sites have contained hyperlinks to other sites since the Web’s inception. What is new is the way that these special Web sites are now being used to facilitate access to other sites that may be closely related, in the case of special purpose portals, or quite diverse, in the case of general portals. What is also new is that the marketers have discovered the portal concept and its advertising potential.

Portals, Portals Everywhere

A Google search of the Web in December 2003 revealed 35.6 million entries for the word “portal”. Even allowing for a considerable degree of overuse and overlap, portals are seen everywhere, and it would be difficult to make any use of the Web without encountering one. Portals also span a bewildering range of topics and interest areas, a small sample of which is provided below.

There are government portals such as: www.gouv.qc.ca (Québec), www.ukonline.gov.uk (UK), www.vic.gov.au (Victoria), www.firstgov.gov

(USA), and www.deutschland.de (Germany). Science portals include: <http://sdcd.gsfc.nasa.gov/ESD/portal> (Goddard Space Flight Centre), www.nature.com/physics, and www.science.gov.au. Those interested in things environmental are catered for by portals such as www.eco-portal.com and www.environment.gov.au. Community portals cover many regions and interest areas, including: www.portalscommunity.com (PortalsCommunity), <http://webdesign.foundlocally.com/OurPortals.htm> (Canadian community portals), www.community.gov.au/, <http://melbourne.citysearch.com.au/> (Melbourne), www.visitmtbeauty.com.au (Mt. Beauty, Victoria) and www.capricornia.org (Rockhampton community groups).

Many portals relate to the IT industry, including: www.ieee.org/portal (IEEE), <http://portal.acm.org> (ACM), www.ifip.org (IFIP), www.cobolportal.com (COBOL), and www.microsoft.com/sharepoint (Microsoft SharePoint portal). There are a number of education portals, such as: www.educatorsportal.com and www.edmin.com (for educational administration), http://mcicunix.mcic.k12.pa.us/~tech/PDE_web2/portals.htm and www.sofweb.vic.edu.au/ (for schools), and www.portal.ac.at (for Austrian academics).

Portals relating to other interest areas include: libraries—<http://portal.unesco.org> and www.wittgenstein-portal.com, music—www.bach-portal.com, sport—www.thebaseballportal.com and <http://afl.com.au/>, health—www.diabetesportal.com and www.betterhealth.vic.gov.au/, and genealogy—www.genealogyportal.com. There is a Britney Spears portal (www.britney-spears-portal.com), a portal for those interested in progressive activism (www.progressiveportal.org), and one dealing with South Asia terrorism (www.satp.org). There is even an anti-portal portal (<http://internetbrothers.com/aortal>) for those who dislike portals.

What Is a Web Portal?

In general terms, unrelated to the World Wide Web, the *Macquarie Dictionary* defines a portal as “a door, gate or entrance” (Macquarie Library, 1981). More specifically, a Web portal is seen as a special Internet (or intranet) site designed to act as a *gateway* to give access to other sites. A portal aggregates information from multiple sources and makes that information available to various users. In other words a portal is an all-in-one Web site used to find and to gain access to other sites, but also one that provides the services of a guide that can help to protect the user from the chaos of the Internet and direct them

towards an eventual goal. More generally, however, a portal should be seen as providing a gateway not just to sites on the Web, but to *all network-accessible resources*, whether involving intranets, extranets, or the Internet. In other words a portal offers centralised access to all relevant content and applications. Historically the Web portal concept probably developed out of search engine sites such as Yahoo!, Excite, and Lycos, which can now be classified as first-generation portals. These sites, however, quickly evolved into sites providing additional services such as e-mail, stock quotes, news, and community building rather than just search capabilities (Rao, 2001). Eckerson (1999) outlines four generations of portals whose focus, in each case, is: generic, personalised, application, and role. Portals may be horizontal or vertical in nature (Lynch, 1998), with sites such as Yahoo!, Excite, and NetCenter being considered as horizontal portals because they are used by a broad base of users. The content area of vertical portals, on the other hand, is tightly focused and geared toward a particular audience (Lynch).

The success of a portal depends on its ability to provide a base site that users will keep returning to after accessing other related sites. As an entranceway onto the Web (or an intranet) it should be a preferred starting point for many of the things that a particular user wants to do there. A useful goal for those setting up a portal is to have it designated by many users as their browser start-up page.

Types of Portals

There is no definitive categorisation of the types of portals, but PortalsCommunity (www.portalscommunity.com/) offers the following list: corporate or enterprise (intranet) portals, e-business (extranet) portals, personal (WAP) portals, and public or mega (Internet) portals. Another categorisation (Davison, Burgess, & Tatnall, 2003) offers: general portals, community portals, vertical industry portals, horizontal industry portals, enterprise information portals, e-marketplace portals, personal/mobile portals, information portals, and niche portals. Unfortunately as the categories are not mutually exclusive, some portals fit into more than one while others do not fit well into any. To further complicate any attempt at categorisation, some implementations can span several different portal types, blended into a form of hybrid solution. A discussion of the different types of portals follows.

General (or Mega) Portals. Portals can aim to provide links to sites that can be either closely related or quite diverse. In the case of general portals the intent is to provide links to all sorts of different sites of the user's choosing. Many of these general portals have developed from being simple search tools (such as Yahoo), Internet service providers (such as AOL), and e-mail services (such as Hotmail). They now try to be the "one-stop port of call" for all (or at least many) user needs. An important goal of a general portal is to become the page a user returns to each time they want to access something on the Web. It will be successful if it can provide most of the services, information, and links that users want. General portals often include services such as: free e-mail, links to search engines and categories of information, membership services, news and sports, business headlines and articles, personalised space with a user's selections, links to chat rooms, links to virtual shopping malls, and Web directories. General portals make their money by selling advertising material. The success of a general portal depends on it generating a large volume of visitor traffic, and this involves attracting new visitors, keeping them at the site for as long as possible, and convincing them to return (Sieber & Valor, 2002).

Vertical Industry Portals are usually based around specific industries. They aim to aggregate information relevant to particular groups, or "online trade communities" of closely related industries to facilitate the exchange of goods and services in a particular market as part of a value chain. Vertical industry portals often specialise in business commodities and materials such as chemicals, steel, petroleum products, or timber. Some specialise in services like cleaning, food, transport, staffing, or publishing. Others specialise in interest areas such as camping, hiking, or fishing equipment.

Horizontal Industry Portals. Portals can be described as *horizontal* when they are utilised by a broad base of users across a horizontal market. Horizontal industry portals are typically based around a group of industries or a local area. Bizewest (see Chapter 16) was an example of a horizontal industry portal.

Community Portals are often set up by community groups such as eLaunceston (www.elauceston.com/) and Cape Breton, Canada (www.centralcapebreton.com/) or based around special group interests such as GreyPath (www.greypath.com), iVillage (www.ivillage.co.uk/), and Women.com (www.women.com). These portals attempt to foster the

concept of a virtual community where all users share a common location or interest and provide many different services depending on their orientation. The extent to which some community portals represent the interests and views of their *entire* community is, of course, open to interpretation.

- **Enterprise Information Portals.** The term enterprise (or corporate) information portals (EIP) is now often being applied to the gateways to the corporate intranets that are used to manage the knowledge within an organisation. These are designed primarily for business-to-employee (B2E) processes and offer employees the means to access and share data and information within the enterprise. An EIP may include facilities such as: a categorisation of information available on the intranet, a search engine covering the entire intranet, organisational news, access to e-mail, access to common software applications, document management, links to internal sites and popular external Web sites, and the ability to personalise the page.

Variations on EIPs include business intelligence portals that are designed to act as gateways to decision-making processes and to provide competitive intelligence, business area portals that support specific business processes such as personnel or supply chain management, and facilities designed to support the field sales forces.

- **E-marketplace Portals.** These extended enterprise portals often offer access to a company's extranet services and are useful for business-to-business processes such as ordering, tendering, and supply of goods. An example is provided by the Swiss company ETA SA Fabriques d'Ebauches (www.eta.ch/), a member of the Swatch Group that produces watches for brands including Omega, Rado, Longines, Tissot, Certina, and Swatch. The group consists of a number of individual companies that focus on producing components and movements for watches. The portal was set up principally to improve cost efficiency and facilitate quicker order processing between members of the group (Alt, Reichmayr, Cäsar, & Zurmühlen, 2002).

E-marketplace portals can also be used for business-to-customer transactions, and a classic example is provided by the bookseller Amazon.com (www.amazon.com). Another example comes from the Association for Computing Machinery (<http://portal.acm.org/portal.cfm>) digital library.

- **Personal/Mobile Portals.** Following the trends towards mobile (or pervasive) computing, personal/mobile portals are increasingly being

embedded into mobile phones, wireless PDAs, and the like. Some appliances are also being equipped with personal portals aimed at allowing them to communicate with other appliances or to be used more easily from a distance.

Information Portals. Although these, in most cases, can also be classified into one of the other categories, information portals can also be viewed as a category in their own right as portals whose prime aim is to provide a specific type of information. The sports information portal ESPN (<http://msn.espn.go.com/>) is one example of an information portal. Another is PortalsCommunity (www.portalscommunity.com/), a portal dedicated to providing information about portals.

Specialised/Niche Portals are designed to satisfy specific niche markets. In many cases these can also be classified as information portals. For example, ESPN (<http://msn.espn.go.com/>) is targeted towards 18 to 34 year-old males, while iVillage (www.ivillage.co.uk/) is targeted towards women. Other specialised portals provide detailed industry information, often available only for a fee.

And All the Web Did Shrink

Grodner (2003) outlines how global companies use portal technology to create online virtual communities. They do this, he notes, in order to improve productivity, enhance communications, and gain competitive advantage by providing real-time access to critical business information. Other authors (such as Lawrence, Corbitt, Fisher, Lawrence, & Tidwell, 2000) refer to portals that focus on aggregating information relevant to specific interest groups as “online vertical trade communities”. Virtual Web communities are seen to offer the potential of a high level of collaboration amongst their geographically dispersed users and to facilitate the rapid dissemination and sharing of relevant content. Grodner points out that for consumers, the concept of a virtual community can be used as a way to bring together individuals with similar interests. In the corporate world, companies can make use of virtual communities to facilitate working with other related companies.

Portals are also of interest to the scientific research community. An article in *Portals* magazine (Roberts-Witt, 2003) describes the National Biological Information Infrastructure (NBII) in the USA (www.nbii.gov and a number of

private sites) as a government-to-government/partner/citizen portal, based on Plumtree Corporate Portal software. The NBII portal allows biologists (researchers and students) to share geographic and geospatial data, without the need to know exactly where the data is housed and to whom it belongs.

Research by Tatnall, Burgess, and Singh (2004) indicates that small businesses can also benefit from the use of portals. These benefits include:

- Provision of a secure environment for online trading: portals generally have a payment infrastructure that enables small businesses to integrate their accounts receivable and payable to the portal back-end systems.
- Search engines, directory services, and shopping bots that list the portals will automatically enable Web users to find the gateway to small online shops on the Web via these portals, saving substantially on costs.
- New partnerships: e-commerce opens up the opportunity for businesses to sell to new buyers, tap into the supply chain and win new business, offer complementary products with other businesses, and procure goods electronically.
- Community building and regional relationship features such as chat rooms, message boards, instant-messaging services, online greeting cards, and other Web services are often included in the portal infrastructure.
- Strategy, management, and business trust: portals enable businesses to adopt a common e-business structure that helps them to attain management support or share ideas with other businesses.
- Improved customer management: portal managers can make deals with Internet retailers for the “eyeballs” that will also benefit small businesses that are part of the portal.

Lawrence et al. (2000) liken a portal to the front page of a newspaper or magazine, offering directions to the location of relevant information. Hanson (2000) stresses the importance of rapid access as “most users will abandon the search if their desired location is not in the first or second screens of information.” Yockelson (2002), on the other hand, thinks that the portal itself is nothing special: “It may be nothing more than a Web-user interface, with built-in access to data or applications.” He argues instead for the benefits of a portal framework that brings with it “the notion of context and technologies that support the delivery of information and services in context.”

The marketing value of portals has not gone unrecognised, and Schneider and Perry (2001) note that Web managers have discovered that increased sales and advertising income can result from the portal's ability to attract more people and retain them longer. They point out that Web portal companies have added sticky features like chat rooms, e-mail, and calendar functions in order to retain visitors longer at their sites. Kleindl (2001) notes that portal sites will soon attract 40% of all commerce revenue and gain 67% of advertising dollars.

Nor Any Better Link

As well as their use in accessing information on the *Internet*, portals are also being used to considerable advantage in conjunction with corporate *intranets*. Enterprise (or corporate) information portals with document management, enterprise content indexing, and team collaboration features are becoming a popular means of aggregating information from many different sources into one convenient place (Microsoft, 2001). These portals offer knowledge workers a new way to organise, find, and share information. The use of corporate portals, or enterprise information portals (EIP), as they are generally known, has undergone considerable growth in recent times, and Roth (2001b) quotes research by the META Group that 85% of organisations in the US will have deployed a portal by 2004. Paul (2002) points out that the term "enterprise portal" is not just a fancy name for intranet as users can customise an enterprise portal to add or subtract internal or external information sources and applications according to their liking. Gill (2002) suggests that portals should now be viewed not as applications, but as an infrastructure to access enterprise information or applications. META Group (Roth, 2002) notes that portal functionality has evolved from a content-centric form (2000), to providing application access (2001), to being useful for collaboration (2002). Common Web applications currently being deployed by organisations include: employee services (76%), knowledge management (67%), and customer support (63%; Line56 Research, 2003).

In 2001 Roth (2001a) included IBM, Plumtree, SAP, and PeopleSoft amongst the leading providers of corporate portal software but indicated that the portal market was only at about 20% market penetration. In 2002 AMR Research (2002) pointed to Plumtree as the highest-ranked provider of enterprise portal framework software and noted that Microsoft's SharePoint Portal Server did

not (then) constitute a complete enterprise portal framework. By October 2003 Microsoft had improved its position, with the greatest share of the portal software market held by: Microsoft SharePoint Portal Server, Plumtree Enterprise Web Suite, and IBM WebSphere Portal (Line56 Research, 2003). Microsoft indicates that its SharePoint Portal Server dashboard site (Microsoft, 2001) lets users: browse through information by categories, search for information, subscribe to new or changing information, check documents in or out, review a document's version history, approve documents for publication, and publish documents. A portal's ability to facilitate better document management and publishing is particularly important as, because there is little or no organisational framework to direct users, large and complex information sources can be difficult to navigate and use. SharePoint Portal features like version tracking, the use of descriptive information (metadata), publishing and document control based on user roles, automated routing of documents to reviewers, and Web discussions by multiple document reviewers, can make document management much easier (Microsoft). As most organisations have information that is stored in multiple locations and in a variety of formats, another important benefit of portal technology is improved indexing and searching services. Useful SharePoint Portal features include: a single location to search for information stored in many different places, keyword searches that examine the full text of a document and the document's properties, browsing by topic to find information, automatic categorisation of documents, "best bet" classification for documents that are relevant to a search, and subscriptions to keep the user up-to-date on information of their choice (Microsoft, 2001).

Research by the Delphi Group (2002) shows that the most important considerations by organisations deploying corporate portal software are: a focus on collaboration, seeking integration capabilities, use of multifunction applications, and targeting of multiple business functions. In a report on the corporate portal market, Plumtree Software (2003a) points out that organisations deploy corporate portals for many reasons, but the most common is to allow their employees to find information and to use applications on their own. The report goes on to note that portal software is maturing: where once it was often just a simple interface for accessing multiple systems, it has become a platform for delivering new, composite applications. Not all is completely well with corporate portal implementations, however, and Valdes, Gootzit, and Phifer (2002) and Plumtree Software (2003b) note that analysts estimate that 40% of all

UNIT 4



FILE TRANSFER PROTOCOL

File Transfer Protocol (FTP)

FTP is part of the TCP/IP protocol suite. It is the *protocol, or set of rules*, which enables files to be transferred between computers. FTP is a powerful tool which allows files to be transferred from “computer A” to “computer B”, or vice versa.

FTP works on the client/server principle. A *client* program enables the user to interact with a server in order to access information and services on the server computer.

Files that can be transferred are stored on computers called *FTP servers*. To access these files, a *FTP client* program is used. This is an *interface* that allows the user to locate the file(s) to be transferred and initiate the transfer process.

The basic steps to use FTP are:

1. Connect to the *FTP server*
2. Navigate the file structure to find the file you want
3. Transfer the file

FTP Servers

The above specifics of each step will vary, depending on the client program being used and the type of Internet connection. *Anonymous FTP* allows a user to access a wealth of publicly available information. No special account or password is needed.

2. CuteFTP—A top notch FTP program with a familiar Windows file manager style interface. It has caching of recently visited directories, robust STOP command, capable of stopping any operation without losing the connection, directory tree downloads, different display fronts, drag and drop, firewall support, etc. released by GlobalSCAPE Inc. (www.cuteftp.com) [Supported Platforms: Windows 95, Windows NT-Platform 3.51/4.0]

3. FileHound—FileHound provides one-step, robust file downloading from both FTP and Web servers. Its main feature includes the ability to resume broken transfers (both HTTP and FTP on capable servers)-it never gives up on a transfer, but will retry and resume automatically. Released by Albino Frog Software (www.frii.com). [Supported Platforms: Windows 95, Windows NT-Platform]

4. FTP Voyager—FTP Voyager is a Windows 95/NT FTP program which looks and feels like the Windows Explorer. Released by Rhino Software (www.rhinosoft.com). [Supported Platforms: Windows 95, Windows NT 4.0]

5. FTP2000—FTP2000 has a built in remote editor, built in HTML editor, drag and drop, Firewall/Proxy support, explore like graphical interface. From Quintessential Objects Inc. (www.qoi.com). [Supported Platforms: Windows 95, Windows NT 4.0]

6. WS_FTP32 LE—A top rated and very popular FTP program from JohnJunod. It is given away free to certain academic, U.S. government and non-commercial homeusers. The commercial Pro Version with advanced features is available from Ipswitch Inc. (www.ipswitch.com).

FTP Service Command

The commands and replies sent across the control connection between the client and server are in NVT ASCII. This requires a CR, LF pair at the end of each line (i.e., each command or each reply).

The only Telnet commands (those that begin with IAC) that can be sent by the client to the server are interrupt process (<IAC,IP>) and the Telnet synch signal (<IAC,DM>)

However, an anonymous FTP site will sometimes ask that user login with the name "anonymous" and use their electronic mail address as the password.

There are a wide variety of files that are publicly available through anonymous FTP. They are:

- **Shareware**: software that you can use free for a trial period but then pay a fee for the licenced version
- **Freeware**: completely free software, for example fonts, clipart and games
- **Upgrades & Patches**: upgrades to current software and "fixes" for software problems
- **Documents**: examples include research papers, articles and Internet documents

Files on FTP servers are often compressed. Compression decreases file size. This enables more files to be stored on the server and makes file transfer times shorter. In order to use a compressed file it needs to be decompressed using appropriate software. It is a good idea to have current virus checking software on the computer before files are transferred it.

FTP Clients

The details of some of the available FTP client software program that you can freely download from the web are given below. Some of them are trial versions, and some are little versions. You can download them and try them out before you make a purchasing decision. The site from which you can download them is also given.

1. ByteCatcher—ByteCatcher FTP Client can detect Internet disconnection's and automatically re-connect and continue downloading without the loss of any data and without any user intervention. Byte Catcher allows you to hang up and reconnect at your pleasure without the loss of previously downloaded data. Released by Save-It Software Pvt. Ltd. Shareware (WWW.save-it.com). [Supported Platforms: Windows 95, Windows NT 4.0]

UNIT 7

WORLD WIDE WEB : An INTRODUCTION

Introduction

The Internet is a computer network that connects millions of computers globally and provides world-wide communications to businesses, homes, schools and governments.

Internets has grown explosively in the 1990s. There are more than four million server computers on the Internet, each providing some type of information or service. The number of users of the Internet is harder to measure. Since many people use each service on the Internet, many million of users are currently on-line. The number of users and services on the Internet continues to grow rapidly even as the variety of services increases.

World Wide Web (WWW) the newest Internet service has accelerated the growth of the Internet by giving it an easy to use, *point and click* graphical interface. Users are attracted to the WWW because it is interactive, because it is easy to use, and because it combines graphics text, sound, and animation making it a rich communication medium.

The WWW provides a network of interactive documents and the software to access them. It is based on documents called *pages* that combine text, pictures, forms, sound, animation and hypertext links called hyperlinks. To navigate the WWW, users "surf" from one page to another by pointing and clicking on the hyperlinks in text or graphics.

The WWW is many things to its millions of users. It is used as a market place, art gallery, library, community center, school, publishing house, and whatever else its authors create. The World Wide Web, also referred to as the WWW or W3 or simply "the Web", is the universe of information available via by pretext transfer protocol (HTTP).

The World Wide Web and HTTP:

- Allow you to create "links" from one piece of information to another.
- Can incorporate references to sounds, graphics, and movies, etc.
- "Understand" other Internet protocols, such as ftp, gopher, and telnet.

The Web presents information as a series of "documents," often referred to as web pages that are prepared using the Hypertext Markup Language (HTML). Using HTML, the document's author can specially code sections of the document to "point" to other information resources. These specially coded sections are referred to as hypertext links.

Those users viewing a web page can select the hypertext link and retrieve or connect to the information resource that the link points to. Hypertext "links" can lead to other documents, sounds, images, databases (like library catalogs), e-mail addresses, etc.

The World Wide Web is non-linear with no top, or no bottom. Non-linear means you do not have to follow a hierarchical path to information resources. Thus you can:

- Jump from one link (resource) to another.
- Go directly to a resource if you know the Uniform Resource Locator (URL) (its address)
- Even jump to specific parts of documents.

Because the Web is not hierarchical and can handle graphics, it offers a great deal of flexibility in the way information resources can be organised, presented, and described.

Web Page

A web page is a single unit of information, often called a document that is available via the World Wide Web (WWW). A web page can be longer than one computer screen and can use more than one piece of paper when it is printed out.

A Web page is created using HTML. It consists of standardised codes or ‘tags’, that are used to define the structure of information on a web page. This code enables web pages to have many features including bold text, italic text, headings, paragraph breaks and numbered or bulleted lists.

Hypertext Markup Language (HTML)

HTML defines several aspects of a web page including heading levels, bold, Italics, images, paragraph breaks and hypertext links to other resources. HTML can be compared to word processing. The text in a work-processed file can be formatted in various ways. For example, a heading can be bold and in larger font size than the rest of the document. Also, specific words can be italicized for emphasis.

Thus, HTML is a way to define the formats of text in a web page. However, it goes further by also being able to define placement of graphics and hypertext links. HTML is a sub-language of SGML, or Standard Generalised Markup Language. SGML is a system that defines and standardises the structure of documents. Both SGML and HTML utilize descriptive markup to define the structure of an area of text. In general terms, descriptive markup does not specify a particular font or point size for an area of text. Therefore, in HTML, text is marked as a heading, subheading, numbered list, bold, italic, etc.

HTML is standardised and portable. A document that has been prepared using HTML markup “tags” can be viewed using a variety of web browsers, such as Netscape and Lynx. A browser interprets the tags in an HTML file and presents the file as a formatted, readable web page. In addition, HTML documents can be viewed on all types of systems, such as Macintosh, PC and UNIX machines.

HTML Tags

HTML tags are used to define areas of documents as having certain characteristics. The tags used in HTML usually consist of a code in between two “Wickets”. These codes are called container tags because the formatting described by the tags affects only the text contained between the tags. For example, `` and `` are the starting and ending tags used to indicate an area as bold. HTML tags are used to define heading levels, such as `<H1>` and `</H1>`. Heading levels can go to `<H6>`, with each successive number indicating a smaller heading size.

- `<I>` and `</I>` to indicate *italics*
- `` to place an image in a document file
- `<P>` to create a paragraph break

In HTML, some codes require end tags and some do not require end tags. In the previous example, the `<P>` tags indicate a paragraph break. This type of code is called an *empty tag* because no end tag is required. The `<P>` tag does not need an end tag (like `` and ``) because a paragraph break is a single entity.

A web page is transferred to a user’s computer via the hypertext transfer protocol (HTTP). HTTP, as we seen, earlier is the method through which hypertext files, such as web pages, are transferred over the Internet. HTTP is a *client/server* based Internet protocol, or set of rules.

Web page generally resides on HTTP servers. A user requests a web page from an HTTP (web) server through his or her web browser client software, either by clicking on a hypertext link or designating a particular URL (Uniform Resource Locator). The server then sends the requested information to the user’s computer.

The browser software *interprets* the HTML codes and presents the information contained in the web page in a readable format on the user’s computer.

Web Application Development

Over the past years, we've witnessed some incredible changes in the way we think about computers. We are no longer bound by large and cumbersome applications on the desktop. With the introduction of the Internet and the World Wide Web, we can now access information, and even do business, from virtually anywhere. The challenge that we, as application developers, now face is that of raising the bar yet again. With these recent advances in technology also comes the demand for faster, lighter, and more robust applications that we can delivery across the Web.

Fortunately, we have some powerful tools to work with. In the past, if you wanted to deliver a database-driven application to customers over the Web, you were pretty much limited to writing CGI scripts to process form data and return some results. But in the last couple of years, a large number of technologies have appeared. The only trouble is trying to sort through the option and decide what is right for you and your organization.

CGI has served its purpose, of adding interactivity and dynamic content to the Web, well. The shortcomings of CGI, both in developing for it and in its scalability, have lead to the development of Server-specific APIs like ISAPI and NSAPI. While these API are indeed more efficient than their CGI predecessor, they suffer from increased complexity. Scripting solutions like Active Server pages (ASP) and PHP have helped simplify web application development. Such solutions have provided a web interface to components used to handle logic and communicate with data sources integrating technology to create web application.

To address the potential of these technologies and to offer a more extensible and portable server-side solution, Sun has developed a new technology called *Servlet*. Java servlets are very efficient, due to an intuitive threading model in which each request is handled by a new lightweight thread. Servlets are also platform independent because they interface to a particular server architecture through a set of

standard interfaces (that make the servlet engine) and a Java Virtual Machine. Lastly, Java servlets provide an object-oriented and highly extensible middle tier for web applications. Servlets can access all of the enterprise Java APIs like JNDI, JDBC, RMI, and Enterprise JavaBeans, to name a few.

Web Architecture

Let's start by showing what happens behind the scenes when you request a web page by typing in a simple URL (Universal Resource Locator) in your web browser.

To open a web page in your browser, you usually either type in the URL, or click an existing link to the URL. Once you submit this request and the web server receives it, the web server locates the web page and sends it back to the browser. The browser then displays the page. Each image in the page is also referenced by a URL, and the browser requests each image. URL from the server in the same way it requested the main HTML page.

When developing applications for this architecture, it helps to have a good understanding of the role of both the web browser and the web server. As you'll soon discover, a thorough knowledge of each is essential to the overall success of your application.

The Web Browser

The Web browser can be thought of as a universal user interface. Whether you're doing some simple web browsing or transacting online banking, the web browser's responsibilities are that of presenting web content, issuing requests to the web server, and handling any results generated by the request. The ubiquity of browser, the generic HTML and Internet access is what makes this interesting.

In the past couple of years, we've seen considerable advances in the browser market. Both Microsoft and Netscape have continually raised the bar, giving us some incredible power on the client side. Both of the major

browsers, Microsoft Internet Explorer and Netscape Communicator, have evolved into fully programmable document containers. Each has its own object model allowing for scripts, or objects, to manipulate the elements of the document itself. Scripting languages like VBScript or JavaScript can be used to perform client-side data validation, or provide some interactivity within the document.

Dynamic HTML, (DHTML) is a combination of HTML, Cascading Style Sheets (CSS), the document object model, and scripting languages, Cascading Style Sheets are a better way of positioning and formatting your HTML elements. And since each property of the style sheet is made visible to the object model, you can use some script to manipulate and reposition your HTML, elements DHTML, as a whole, provides a greater level of interactivity within your pages. It also adds much more control over the presentation of them as well.

The latest must have browser feature is Extensible Markup Language (XML) support. XML allows you to define your own tag set to characterize your data, and to construct documents and data structures using these tags. XML provides a way for structured data to be self-describing, and that means the data can be portable. Furthermore, with Extensible StyleSheets (XSL), you can select the data you want to see, and even change tag names, allowing you to transform XML, tags to HTML, for instance. Exactly where you perform these translation steps depends on whether you can depend on XML support in your client browser. In this book, because much browser are by no means ubiquitous, we'll concentrate on making transformations to the XML on the server.

The web browser is also capable of executing applications within the same context as the document on view. The two most popular choices for client-side web applications are Microsoft's ActiveX technology and Java applets. ActiveX components are downloaded from the web server, registered with the Windows registry, and executed

when called upon by other script elements. A Java applets is a small Java program also downloaded from the web server, and executed within the browser's own Java Virtual Machine (JVM). Both ActiveX objects and Java applets have full access to the browser's document object model and can exchange data between the browser and themselves.

Regardless of the way in which we make use of a browser, it will always serve the purpose of being our 'window to the world'. It serves as our primary user interface as we browse the web, conduct online business, or even play games.

The Web Server

At the heart of any web interaction is the web server. The web server is a program running on the server that listens for incoming requests and services those requests as they come in. Once the web server receives a request, it then springs into action. Depending on the type of request, the web server might look for a web page, or it might execute a program on the server. Either way, it will always return some kind of results to the web browser, even if its simply an error message saying that it couldn't process the requests.

According to the Netcraft Web Server Survey <http://www..netcraft.com/survey> the leading web server today are the Apache Web server and Microsoft's Internet Information Server. The Apache web server has been developed as free software and has been contributed to by programmers around the world. Its power, flexibility, ease of use, and the availability for multiple platforms has contributed to its rise in popularity over the past few years. Microsoft's IIS, on the other hand, runs on the Windows NT operating system and is included as part of the Windows NT system. While Microsoft's IIS offers a wide range of features, its dependence on the windows operating system may be holding it back. With the current rise in popularity that the Linux operating system has enjoyed, it is likely that the Apache web server (which comes packaged with most Linux distributions) will continue to gain ground on the competition.

UNIT 9

HTML



An Introduction to HTML

Almost all the Word Processors allow the user to set margins for a page, enhance the look by changing font settings, and add special effects to the text and so on. All these options belong to a category of language called *mark up language*. Now if such formatted documents need to be put on the web then the document needs to be converted into HTML format, which the browser can understand.

In 1980, a mark up language was developed to create documents that could be displayed consistently on computers of different hardware and operating systems. It was called the Standard Generalized Markup Language of (SGML) on Web.

HTML or Hyper Text Markup Language has evolved from the SGML.

HTML is used to construct formatted pages for the web known as *Web Pages*. It comprises of:

- **Markup Language**

It refers to the tags which specify how to incorporate text, graphics, sound and also control visual elements such as fonts, font size and paragraph spacing.

- **Web page Content**

The actual text information, that is displayed on the page.

Structure of an HTML document:

The skeleton of HTML document is:

```
<HTML>
<HEAD>
.....
</HEAD>
<BODY>
.....
</BODY>
</HTML>
```

Heading Section

Actual Text

In every HTML document `<HTML>` and `</HTML>` tags marks the beginning and the end of the document. These tags inform the browser that the document is an HTML file. All other HTML tags must reside within the `<HTML>.....</HTML>` tags.

The HTML document can be divided into two sections:

- Header or Head Section
- Body section

1. **Header or Head Section:**

HTML includes a pair of tags, `<HEAD>` and `</HEAD>` to identify the heading or title of a document

The tag `<TITLE>....</TITLE>` can appear only in this section. The text that exists between the title tags, appears as the title in the browser's window and length of it should not exceed beyond 60 characters.

2. **Body Section:**

The body of an HTML document contains the text that will show up on the Web page. The body section is enclosed with `<BODY>` and `</BODY>` tags. It gives a description of the document's layout and structure.

Figure Shows for the Structure of an HTML document.

```
<HTML>
<HEAD>
<TITLE> My first HTML document</TITLE>
<H1>This is the heading of my document</H1>
```

```

</HEAD>
<BODY>
<P>Learn HTML fast and easy </P>
<P> My first Web page </P>
</BODY>
</HTML>

```

The HTML code displays the title of the browser windows as "My First HTML document" and the heading of the document as "This is the heading of my document". The text in the document will be "Learn HTML fast and easy" and "My first Web page".

The output of the above code is displayed in the Internet Explorer browser.

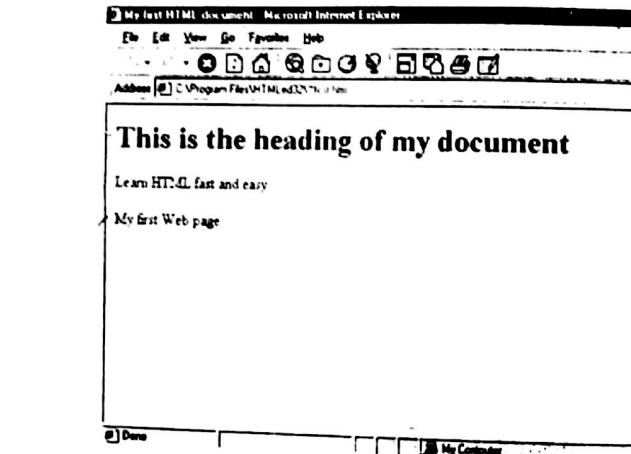


Figure 9.1

Web documents are typically written in HTML and are saved with the suffix ".htm". These documents can be displayed using Web browsers.

HTML files include both control information (HTML tags) and content (text), which together describe the appearance and contents of Web pages. In addition, each of these tags can have their own settings called attributes. A typical tag could be:

<H1 ALIGN= CENTER> My Personal Home Page</H1>

The following features should be kept in mind while writing HTML documents:

- Each tag is enclosed within a <(left bracket) and > (right bracket). These special characters are what differentiate the tags from ordinary text.
- Opening tag is denoted by <>, for example, <I>: This is the opening tag to display text in Italics.
- Closing tag is denoted by </>, for example, </I>: This is the closing Italics tag.
- Tag names are not case sensitive but generally they are written in uppercase so as to distinguish them from the normal text.

The Headline tags are used to display headings on the web page in various sizes. These tags can be used for providing main and sub-headings to the web page. HTML Document supports 6 levels of headline tags <H1> to <H6>. The size of the text within the <H1> tag is the largest and <H6> tag is the smallest. Each of these headings always begins on a new line.

The syntax is:

<H1> The Text is placed Here </H1>

To use the rest of the Headline Tags, H1 will be replaced by the respective Headline Tags like H2 and so on.

Example 1.

```

<HTML>
<HEAD>
<H1> This Heading is created using H1 tag </H1>
<H2> This Heading is created using H2 tag </H2>
<H3> This Heading is created using H3 tag </H3>
<H4> This Heading is created using H4 tag </H4>
<H5> This Heading is created using H5 tag </H5>
<H6> This Heading is created using H6 tag </H6>
</HEAD>
</HTML>

```

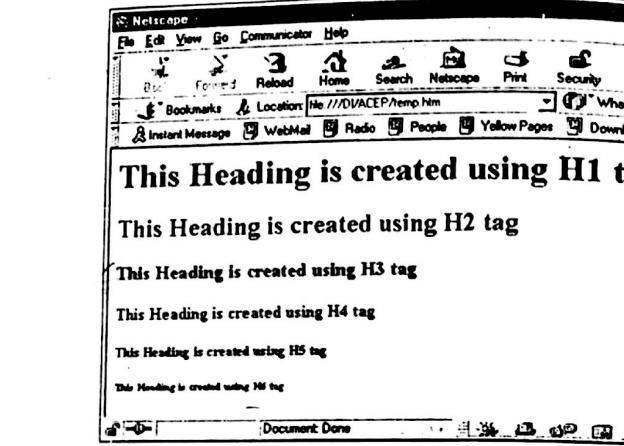


Figure 9.2

HTML tags have some additional parameters called arguments or attributes to increase the functionality of the tags.

Attributes for the Heading Tag

The headings displayed in the browser window are normally left aligned. The headings can be aligned right or in the center by setting the ALIGN attribute for the Heading Tag.

`<H1 ALIGN="...."> The text to be placed here</H1>`
The possible values for this attribute are:

- * Center
- * Left
- * Right

The attribute remains the same for the rest of the Heading tags.

Paragraph Formatting tags

Whenever we are interested in organizing the text into paragraph HTML tag `<P> ...</P>` can be used. Normally, in text documents the paragraphs appear with blank lines on the top and in the bottom of the paragraph. To specify the beginning of the paragraph and the end of paragraph, `<P>` and `</P>` tag is used.

The Syntax is:

`<P> The paragraph text should be added here within the <P> tag.`

The paragraph tag by default will display a blank line both on the top and the bottom of the paragraph. But, the paragraph are ignored. To overcome this, the `
` tag can be used to insert a new line.

Attribute for Paragraph

"ALIGN" attribute of `<P>` tag is used to align the paragraph on the web page.

The Syntax is:

`<P ALIGN = "Value">`

The possible values are:

- CENTER
- LEFT
- RIGHT

Font Settings Tag

This tag can be used for text style specifications. The tag is ``. The attributes are as follows:

The syntax is:

``

Text

``

The SIZE attribute of the `` is used to specify the size of the text.

The syntax is:

` Text`

``

The possible values are : 1,2,3 and so on.

When you specify ``, then the text will be displayed in 8 pt size, if the size is 2 the text as 10 pt, 3 is 12 pt, 4 is 14 pt and so on.

COLOR attribute of the `` is used to specify the colour of the text.

FOCUS

The process of Pre-production | Storyboarding and Importance | Information Architecture | The principles of Web Journalism | Types of Navigation | Cyberculture Studies | Popular Cyberculture | HTML | CSS | HTML5 | The core Design principles | Binary Dualism | Limited Dualism | Rhetoric Dualism | Top-level or Vertical and Horizontal navigation | The Principles of Web Journalism | Web Portals | Critical Cyberculture Studies | Horizontal Web Portals and Vertical Web Portals | Sitemap | Web Crawler | UCD - User centric design | Digital Divide | The process of Pre-production | Storyboarding and Importance | Information Architecture | The principles of Web Journalism | Types of Navigation | Cyberculture Studies | Popular Cyberculture | HTML | CSS | HTML5 | The core Design principles | Binary Dualism | Limited Dualism | Rhetoric Dualism | The process of Pre-production | Storyboarding and Importance | Information Architecture | The principles of Web Journalism | Types of Navigation | Cyberculture Studies | Popular Cyberculture | HTML | CSS | HTML5 | The core Design principles | Binary Dualism | Limited Dualism | Rhetoric Dualism | Top-level or Vertical and Horizontal navigation | The Principles of Web Journalism | Web Portals | Critical Cyberculture Studies | Horizontal Web Portals and Vertical Web Portals | Sitemap | Web Crawler | UCD - User centric design | Digital Divide | The process of Pre-production | Storyboarding and Importance | Information Architecture | The principles of Web Journalism | Types of Navigation | Cyberculture Studies | Popular Cyberculture | HTML | CSS | HTML5 | The core Design principles | Binary Dualism | Limited Dualism | Rhetoric Dualism | Top-level or Vertical and Horizontal navigation | The Principles of Web Journalism | Web Portals | Critical Cyberculture Studies | Horizontal Web Portals and Vertical Web Portals | Sitemap | Web Crawler | UCD - User centric design | Digital Divide | The process of Pre-production | Storyboarding and Importance | Information Architecture | The principles of Web Journalism | Types of Navigation | Cyberculture Studies | Popular Cyberculture | HTML | CSS | HTML5 |